DOCUMENT RESUME

ED 064 488 VT 015 694

TITLE Health. An Instructional Guide.
INSTITUTION Los Angeles City Schools, Calif.
REPORT NO CVTE-N-118-X-LEA
NOTE 380p.; PAES Collection

EDRS PRICE MF-$0.65 HC-$13.16
DESCRIPTORS Bibliographies; Course Content; *Curriculum Guides; Educational Objectives; Evaluation Techniques; Grade 11; Grade 12; *Health Education; Instructional Materials; Learning Activities; Resource Materials; *Secondary Grades; Teaching Guides

ABSTRACT

This curriculum guide has been prepared to assist senior high school teachers in providing a 1-semester course in health for Grade 11 or 12. Developed by teachers, health coordinators, school health services personnel, and representatives of 23 community health organizations and agencies, the guide first presents an overview of the basic concepts and understandings to be developed in each of the seven units, which cover such topics as nutrition, narcotics, alcohol, first aid, and consumer protection. Contained in each unit are: (1) a discussion of the scope of the unit, including unit objectives and suggested time allotments which range from 1 to 4 weeks, (2) an outline of the content which is correlated to learning activities and resources, and (3) an explanation of suggested evaluation procedures, including tests and inventories, classwork performance, self-appraisal, and teacher observations. A bibliography of books for each unit is provided. (SB)

VT 015 694

ED 064488

AN INSTRUCTIONAL GUIDE

HEALTH

SENIOR HIGH SCHOOL

LOS ANGELES CITY SCHOOLS

FILMED FROM BEST AVAILABLE COPY

CTVE N-118

L 000 [illegible]

ED 064488

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

INSTRUCTIONAL GUIDE

HEALTH

Senior High School

VT015004

This publication was developed in accordance with the Comprehensive Curriculum Policy adopted by the Los Angeles City Board of Education.

APPROVED BY ASSOCIATE SUPERINTENDENTS:

ROBERT E. KELLY
Division of Secondary Education

EVERETT CHAFFEE
Division of Instructional Services

FOREWORD

Among the seven educational purposes of the Los Angeles City Schools, as stated in Point of View, is "that each pupil ... develop and maintain physical and mental health." To fulfill this purpose, a coordinated program of health instruction, health services, and maintenance of a healthful school environment is provided to assist senior high school students to

Gain scientific health knowledge
Acquire intelligent health attitudes
Develop effective health practices

This publication has been prepared to promote the achievement of these objectives through providing assistance to senior high school teachers in meeting the revised graduation requirements in health education. In this revision, completion of a semester course in health is required for graduation. This course may be taken in place of 1 semester of physical education or as an elective in addition to physical education. The requirement may be completed during any semester or summer session between B11 and A12 inclusively. The health education course meets the State requirement for the teaching of first aid and the harmful effects of narcotics and alcohol.

Opportunities for a variety of health education experiences also are offered in related subjects and in other phases of the school health program. This total program of health education is designed to reinforce and to supplement home and community efforts to help each child attain his maximum health potential, physically, mentally, and socially.

EVERETT CHAFFEE
Associate Superintendent
Division of Instructional Services

ACKNOWLEDGMENTS

Grateful acknowledgment is expressed to the many teachers, health coordinators, school health services personnel, and representatives of 23 community health organizations and agencies who so generously made helpful suggestions during the development of this guide. The Physical and Health Education, Safety, and Youth Services Branch also is deeply indepted to the Senior High School Health Education Advisory Committee, which exercised overall leadership and assisted in many other ways. The members of this group were:

Arthur Andresen
Gordon Brown
Albert Calce
Everett Chaffee
Lyle Dixon
Lawrence Houston
George Ingles
Robert Kelly
Joseph Langan
Douglas MacKenzie
Isaac McClelland
Margaret McQuarrie
Herbert Morey
Gerwin Neher
Harriett Randall, M.D.
Ruth Rich
Jerrold Russom
Pat Turner, Chairman
Marie Wallis
Brooks Williams

Particular appreciation is expressed to Pat Turner, chairman of the committee, for his leadership and overall direction; and to the principals and teachers of the four schools which conducted the experimental program in health education during 1963-64. These persons also served as members of the advisory committee.

Thanks are conveyed to the following members of the teacher committees who participated in the development of learning activities which are described in the guide:

Gordon Brown, Lincoln High School
Paul Carver, Garfield High School
Albert Calce, Jordan High School
Lyle Dixon, Lincoln High School
Arlene Graber, Dorsey High School
Ralph Heiland, Garfield High School
Riley Johnson, Jefferson High School
Shirley Krizmanich, Gardena High School
James Kroll, Riis High School
Douglas MacKenzie, Canoga Park High School
Barbara MacMillan, Dorsey High School
Margaret McQuarrie, Narbonne High School
Helen Niparko, Cleveland High School
Beverly Pennock, Monroe High School
Virginia Robbins, Roosevelt High School
Marie Dunn Smith, Taft High School
Marie Wallis, Canoga Park High School

The suggestions of Joseph Langan, Supervisor of Health Education, Division of Secondary Education, during the various stages of development of this publication are gratefully acknowledged. In addition, gratitude is conveyed to Jerrold Russom, Supervisor in Charge, Physical Education Section, Division of Instructional Services, for his contributions.

Sincere appreciation is extended to Harriett Randall, M.D., Director of the Health Services Branch, Auxiliary Services Division, and to Virginia Crockett, M.D., Geraldine Dickinson, M.D., John Downing, D.D.S., and Vera Waegele, M.D., for their verification of the health information contained in this publication and for their valuable suggestions.

RUTH RICH
Supervisor of Health Education

LAWRENCE E. HOUSTON
Administrator of Physical and
Health Education, Safety, and
Youth Services

CONTENTS

Foreword iii

Acknowledgments iv

To the Teacher viii

Overview of Basic Concepts and Understandings to Be Developed ix

Unit I - Orientation to Health Needs 1

Unit II - Guidelines for Improved Nutrition 57

Unit III - Transitions to Maturity 85

Unit IV - Narcotics, Alcohol, Tobacco, and Other Harmful Substances 119

Unit V - Progress in Public Health 195

Unit VI - Consumer Health Protection 311

Unit VII - Essentials of First Aid 337

Bibliography of Health Education Materials in Senior High School Libraries 355

TO THE TEACHER

This publication implements the course of study outline for senior high school health education. Its content is organized into seven basic units of instruction. An outline of content, lists of suggested activities and reference materials, and an explanation of evaluation procedures are included in each unit.

Obviously, each unit contains more material than can be included in the suggested time allotment. Therefore, teachers are encouraged to select and adapt from the wide range of activities suggested, those experiences which best meet the capacities and interests of students. Subject matter designated as optional should be reviewed with the school principal for guidance and direction.

The following content areas and suggested time allotments have been designated for this course:

CONTENT AREA	TIME ALLOTMENT (in weeks)
I. Orientation to Health Needs	2 - 3*
II. Guidelines for Improved Nutrition	1 - 2*
III. Transitions to Maturity (optional unit)	3 - 0*
IV. Narcotics, Alcohol, Tobacco, and Other Harmful Substances	3 - 4*
V. Progress in Public Health	4
VI. Consumer Health Protection	2
VII. Essentials of First Aid	3

*Suggested time adjustments in the event that Unit III is omitted or curtailed.

OVERVIEW OF BASIC CONCEPTS AND UNDERSTANDINGS TO BE DEVELOPED

Unit I. Orientation to Health Needs

- Health is a state of complete physical, mental, and social well-being.
- Health is a quality resulting from the optimum functioning of the total organism in his bio-social environment.
- A person's health potential is influenced by heredity, environment, and the ability to apply scientific health knowledge in his daily living.
- Each individual must assume responsibility for his own health and that of his family and community.
- The skin serves as a protective covering, regulator of body temperature, organ of excretion, and organ of sensation.
- Skin reflects the health, emotional state, occupational and/or recreational pursuits of an individual.
- Complexion problems are a normal concern of teen-age youth because skin eruptions are closely associated with the glandular changes that are taking place during adolescence.
- Body odor is produced by the action of surface bacteria on perspiration.
- Bacteria in the mouth thrive on refined sugars and starches, converting them to decay-producing acids within minutes.
- Decayed and missing teeth may lead to additional tooth loss, malocclusion, periodontal disease, and other health problems.
- Early removal of unerupted or impacted third molars reduces chances of gum infection and loss of other molars.
- Refractive errors are visual defects in which images do not focus properly on the retina.
- Periodic medical examinations and screening tests and the application of sound health and safety practices are important factors in eye and ear health.
- Most foot problems are caused by improper footwear.

Unit I. Orientation to Health Needs (cont.)

. Fitness entails optimum health, including proper nutrition, adequate rest and sleep, and proper medical and dental care, as well as sufficient capacity to meet the demands of daily living without undue stress or fatigue.

. Muscular activity helps the normal heart and circulatory system to function more efficiently.

Unit II. Guidelines for Improved Nutrition

. Proper nutrition is essential for

Building and repairing body tissues
Providing energy for work and play
Regulating body processes

. The major classes of nutrients which are vital for cellular metabolism include

Carbohydrates
Fats
Proteins
Mineral Salts
Vitamins
Water

. Nutrients are distributed in a wide variety of plant and animal foods.

. No single food contains all the essential nutrients.

. A Calorie is the measure of the energy value of food.

. Body weight remains relatively stable when caloric value of food intake is just about equal to caloric expenditure.

. Weight control is an essential factor for good health.

. Proper nutrition can be achieved for the average individual by including in the daily diet servings from each of the Basic Four Food Groups.

Unit II. Guidelines for Improved Nutrition (cont.)

. Official and voluntary agencies help to protect the consumer against nutritional quackery and faddism in a number of ways.

Unit III. Transitions to Maturity (optional unit)

. Maturation is the process by which the individual grows and develops physically, psysiologically, emotionally, and socially.

. In their development from conception to adulthood, human beings go through a series of stages, including prenatal, neonatal, infancy, childhood, and adolescence.

. Adolescence is a phase of the growth cycle which begins with the physiological changes of puberty and which ends with acquisition of the responsibilities of adulthood.

. Although patterns of growth and development follow a recognized sequence, the growth pattern of each individual is unique.

. The accelerated growth rate which starts with the onset of puberty, continues at a diminishing rate and gradually ceases during late adolescence.

. The endocrine glands control body growth and development and are responsible for the normal functioning of the reproductive system.

. Marriage establishes the family as the basic social unit of our society.

. The family functions as the established social unit for procreation and child rearing.

. Inherited characteristics are transmitted from parent to offspring through the genes which are located in the chromosomes of reproductive cells.

. Heredity as well as prenatal influences are important factors in determining the health and well-being of a child.

. Emotional maturity is evidenced by the ability to direct one's emotions into constructive channels.

. Social maturity is evidenced by one's acceptance of his responsibilities as defined by society.

Unit IV. Narcotics, Alcohol, Tobacco, and Other Harmful Substances

. Narcotics, alcohol, and tobacco are harmful substances because they interfere with the optimum functioning of human body processes.

. The control of drugs is essential to the health and well being of the individual, the community, and the nation.

. Stimulants are substances which tend to excite or to arouse the brain and nervous system.

. Depressants are substances which tend to lower the functional activity of the brain and nervous system.

. Hallucinogens are drugs which elicit in normal subjects optical or auditory hallucinations and perceptual disturbances.

. Drugs have an essential role in medicine, but unprescribed and unsupervised use can produce habituation or addiction and can lead to accidental injury or even death.

. Any substance which is taken regularly can be habit-forming; however, addicting drugs produce both tolerance and physical dependence.

. Narcotic addiction is a complex sociomedical problem, having physiological, psychological, and sociological implications.

. Many persons who abuse drugs have been generally characterized as inadequate or psychopathic personalities with low frustration tolerance.

. The misuse of alcoholic beverages is a serious social problem which often results in economic losses to the community, marital and family problems, traffic accidents, delinquency and crime, and impaired health suffered by victims of alcoholism.

. Alcohol is a depressant drug which may be habit-forming and in some cases, addiction-producing.

. Alcohol produces effects upon personality and behavior which cause the user to do things that he would not do under normal circumstances.

. Alcoholism is a complex sociomedical problem having physiological, psychological, and sociological implications.

Unit IV. Narcotics, Alcohol, Tobacco, and Other Harmful Substances (cont.)

. The constituents of tobacco smoke contain many dangerous substances which produce changes in the normal functioning of physiological processes and which over a prolonged period tend to shorten or to impair human life.

Unit V. Progress in Public Health

. Public Health is an organized community effort aimed at the preventive, promotional, and rehabilitative aspects of both physical and mental health.

. Man has been able to realize his potential more fully through the application of scientific principles toward the solution of public health problems dealing with disease prevention, sanitation, and environment.

. Responsibility for community health is that of official, voluntary, and professional health agencies as well as that of individual citizens.

. Disease is a disturbance in the function or structure of any organ or part of the body.

. All human beings are subject to disease, both communicable and chronic or degenerative.

. Chronic disease is that which is slow in its course and of long generation.

. Communicable diseases are caused by specific infectious agents or their toxic products which are transmitted through the following modes: Contact (direct or indirect), vehicle (water, food), vector (mosquito, tick), or air-borne (droplet, dust).

. Immunity is resistance to infection.

. Protective defenses which help the body to resist disease include skin and mucous membranes, the phacocytic action of white blood cells, and the production of antibodies against pathogenic agents.

. Vaccines contain attenuated or dead pathogens, or their toxic products (toxoids).

. Immune serums contain antibodies against specific diseases.

. Active immunity may result from either having had a disease or being innoculated with the specific antigen.

Unit V. Progress in Public Health (cont.)

. A person may acquire passive immunity from the transfer of immune serum (gamma globulin) from another person or from certain animals.

. The venereal diseases are a group of communicable diseases that are transmitted almost always through intimate physical contact with an infected person.

. The organisms that cause venereal disease die very quickly when exposed to air; therefore, they are almost never transmitted through objects such as towels, drinking glasses, or lavatory facilities.

. There is no immunizing agent against venereal disease.

. Tuberculosis claims the lives of more people between the ages of 15 and 45 than any other communicable disease.

. Diseases of the cardiovascular system and cancer are the leading causes of death in the United States.

. There is a variety of career opportunities in the field of health occupations.

. Cancer is abnormal and uncontrolled cellular growth.

14

Unit VI. Consumer Health Protection

. A consumer is anyone who uses products and/or services.

. Consumer health information comes from many sources, both scientific and non-scientific.

. Wise decisions concerning the safe consumption and use of health services and products is dependent upon the ability of the consumer to apply sound criteria in his selection.

. Advertising is directed toward both the conscious and unconscious motives of the consumer.

. The consumer is protected by his own education and by the activities of professional organizations and local, state, and federal legislatures.

. Medical quackery is the fraudulent and unauthorized practice of medical skills by persons who pretend professionally or publicly to skill, knowledge, or qualifications which they do not possess.

Unit VI. Consumer Health Protection (cont.)

. Patent medicines are those which are advertised and sold to the public under a brand name without prescription.

. Prescription medicines are those which are considered unsafe for use except under medical supervision because they are habit-forming or toxic, or because their method of use requires particular supervision.

. Health insurance plans are designed to meet unexpected financial need directly related to health care.

. Local, state, and national health agencies protect the public in the safe use and consumption of foods, drugs, and cosmetics.

. Labeling provides protection to the public in the use of foods, drugs, cosmetics, and household products.

Unit VII. Essentials of First Aid

. First Aid is the immediate and temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained.

. Medical Self Help is the care given victims of a disaster when the services of a physician are not, and will not be available.

. First aid education helps to prevent accidents by creating an awareness of safety hazards and by developing a sense of responsibility for the safety of others.

. Primary considerations in the first aid for wounds are protection against infection and control of bleeding.

. For cases involving asphyxia, mouth-to-mouth breathing is the most effective method of manual resuscitation.

. Shock resulting from trauma is a depressed condition of the body functions due to failure of enough blood to circulate through the body following serious injury.

. Complications resulting from injuries may be prevented by maintaining cleanliness, quiet, immobility, and warmth.

. Emergencies requiring immediate first aid include severe bleeding, asphyxia, and poisoning.

Unit VII. Essentials of First Aid (cont.)

- The injurious action of caustic poisons, such as lye and strong acids, diminishes when fluids are given to dilute the poison; however, vomiting should not be induced.
- In cases involving poisoning, the label or container found near the victim should always be saved for identification of the poison.
- The first aid procedures for injuries due to heat or cold are to treat for shock, relieve pain, and prevent contamination.
- For injuries involving sprains, dislocations, and suspected fractures the injured body part should be immobilized, and medical attention should be obtained.

16

UNIT I

ORIENTATION TO HEALTH NEEDS

I. SCOPE OF THE UNIT

The health and well-being of the school-age population continues to be of national interest and concern. Research findings indicate that, without optimum health, the student is not likely to achieve a level of competency which is commensurate with his maximum capabilities.

Problems of dental health, vision and hearing, the nose and throat, muscular fitness, posture, and of the skin are reported frequently in health appraisals of high school students. Such problems often go uncorrected because of inadequate follow-up. However, health problems cannot be solved through corrective procedures alone. Paramount to the preservation and improvement of students' health is the teaching of scientific concepts which enable them to develop an understanding of the basic practices which contribute to optimum health and which are necessary for the prevention and control of health problems.

The purpose of Unit One is to orient students to the nature and goals of the required semester course in Health. The unit will also help students to

Develop a point of view regarding health which is firmly supported by the medical sciences.

Understand the need to apply scientific health knowledge and practices in their daily living.

Gain an understanding of the health needs and problems which are common to high school students.

Establish priorities in meeting personal health needs.

It is suggested that two weeks be allowed for the completion of this unit. Modifications in this time allotment should be based on the needs of students. Teachers should select from the range of activities suggested those experiences which are best suited to the capacities and interests of individual classes.

The outline of course content for Unit One, lists of suggested activities and reference materials, and an explanation of evaluation procedures appear on the following pages.

UNIT I

ORIENTATION TO HEALTH NEEDS

OUTLINE

A. OVERVIEW

1. Point of View
2. Health Needs and Problems of High School Students
3. Identification of Personal Health Needs
4. Follow-up Care

B. RESPONSIBILITIES IN MEETING PERSONAL HEALTH NEEDS

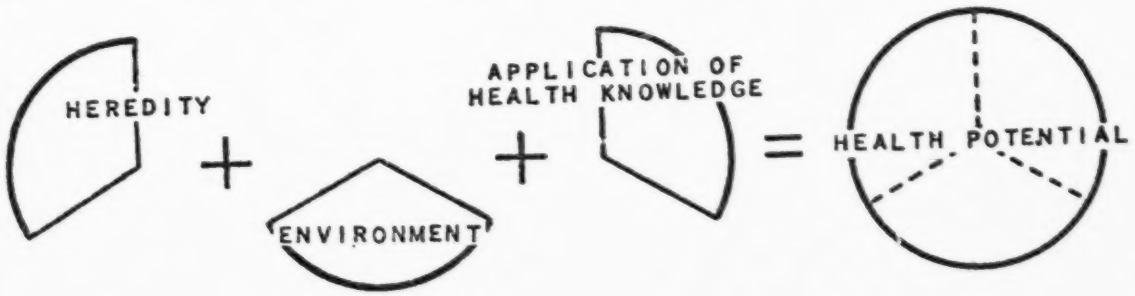
1. The Healthy Body
2. Problems Related to Total Fitness
   a. The Skin
   b. Dental Health
      (1) Impacted Teeth
      (2) Dental Caries
      (3) Peridontal Disease
      (4) Maloccluded and Missing Teeth
      (5) Individual Responsibility
      (6) Progress in Dental Research
   c. Health of Special Sensory Organs
      (1) The Eye
         (a) Common Problems
            1) Vision Defects
            2) Infections
         (b) Special Problems
         (c) Individual Care
         (d) Medical Advice and Care
         (e) Recent Research Developments
      (2) The Ear
         (a) Individual Care
            1) Common Problems
            2) Special Problems
         (b) Medical Advice and Care
         (c) Recent Research Developments
      (3) Nose and Throat
         (a) Individual Care
         (b) Medical Care and Advice
         (c) Recent Research Developments
   d. Foot Health
      (1) The Healthy Foot
      (2) Foot Problems
         (a) Foot Faults
         (b) Improper Footwear
         (c) Infections
      (3) General Care
   e. Physical Activity and Fitness
      (1) Concept of Physical Fitness
      (2) Beneficial Effects of Physical Activities
      (3) Physiological Reactions to Muscular Activity
      (4) Contributions to Posture and Body Build
   f. Balance of Work, Rest, Physical Activity, and Recreation
      (1) Fatigue
      (2) Stress
      (3) Sleep
3. Healthful Appearance
   a. Cleanliness and Grooming
   b. Discriminate Use of Skin and Hair Preparations

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
ORIENTATION TO HEALTH NEEDS Point of View of Health	Arrange a bulletin board display of newspaper clippings and other materials to point out the nature and scope of national health needs. Discuss the extent to which each of these problems may affect students individually. Ask each student to write a brief definition of the term "health." Request students to compare their definitions with those of authoritative sources, including the World Health Organization. Following is the definition issued by this organization: Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.[1] Point out that most authorities stress the concept that health is a quality resulting from the optimum functioning of the total organism. Ask the class to suggest and to analyze common expressions that are used to describe optimum health, such as "fit as a fiddle" and "sound as a dollar." Develop a list of factors on the chalkboard which may influence a person's health potential. Cite evidence which helps to substantiate the statement that the application of scientific health knowledge has enabled	Text and Library Books Consult recent periodicals and professional journals. Modern Health. pp. 1-5. Health and Safety for You. pp. 45-46. The National Education Association and the American Medical Association. Health Education. Washington, D.C.: National Education Association, 1961. pp. 1-20. Los Angeles City Schools. Guarding the Health of Pupils. pp. 1-24.

[1] "Constitution of the World Health Organization," Chronicle of the World Health Organization (Geneva: World Health Organization, 1947), 29-43.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Point of View of Health (cont.)	man to realize his health potential more fully. This concept may be expressed graphically as follows:	Text and Library Books Modern Health. pp. 14-18. Health and Safety for You. pp. 16-27.



Ask the class to develop a list of factors which are responsible for influencing behavior patterns in relation to health. Assign students to prepare a chart showing how various basic sciences and related fields contribute to health knowledge and practice. Show how the scientific method is employed as a means of finding solutions to health problems. Request students to evaluate the scientific foundations of a newspaper report on a recent health finding. Ask students to suggest ways of converting scientific health knowledge into desirable health practice. Appoint a panel of students to discuss the reasons why discrepancies exist between health knowledge and practice.

Assign students to write a brief paragraph on why health instruction is a high school graduation requirement. Point out that this course deals with the preventive and promotional aspects of health and concerns the teaching of

> Scientific facts and truths upon which individuals must base decisions and actions in order to achieve

The National Education Association and the American Medical Association. Health Education. Washington, D.C.: National Education Association, 1961. pp. 95-113.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Point of View of Health (cont.)	their health potentials. Health /instruction/ encompasses areas of knowledge such as child growth and development, the human body, biological needs of human organisms, psycho-social needs of the individual, hazards to life and health, progress in human health and the scientific basis for health care, biological and psychological needs in the home and family, community health services, and national and international health.[1]	Text and Library Books Health and Safety for You. pp. 22-26.
Health Needs and Problems of High School Students	Discuss the importance of health to the achievement of personal goals. Ask students, "Why is the health of youth a national concern?" Discuss the following statements with students: Public health is the foundation on which reposes the happiness of the people and the power of a country. (Disraeli) . . . The knowledge that the physical well-being of the citizen is an important foundation for the vigor and vitality of all the activities of the nation is as old as Western civilization itself. (John F. Kennedy) Discuss findings concerning the health status of young people. Cite statistics concerning the number of men rejected by the Army among those called for military service during World War II and among those drafted for the	The National Education Association and the American Medical Association. Health Education. Washington D.C.: National Education Association, 1961. pp. 126-134.

[1]"Health Education Terminology," The Journal of School Health, 33 (March 1963), pp. 120-21.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Health Needs and Problems of High School Students (cont.)	compulsory military training program. Review health problems of high school students as revealed by findings of school health examinations. Report that one such study conducted with nearly 1,000 Los Angeles city high school students revealed that at least one health problem existed among approximately half the participants. Moreover, dental health problems were revealed among approximately 20 per cent of the students with reported health problems and about 25 per cent had postural deviations. Ask a committee to report on the major health problems of students in the school. Review national health statistics concerning the morbidity and mortality rates of teen-age youth.	Text and Library Books Health and Safety for You. pp. 22-23, 37-40.
Identification of Personal Health Needs	Request a committee to develop a list on the chalkboard of what they think are the health needs and problems of high school students. Administer a pretest on health knowledge, attitudes, and practices. Use an analysis of the test results to identify health misconceptions held by students. Develop a checklist or similar technique to allow students to express particular interests and problems about which they wish information or would like to study. For example: To Students: Health topics which are generally of interest to high school students are listed below. Some of the topics may interest you; others may not. Read the list through and circle those items about which you would like more information. Use the	Health Education Tests and Inventories Willgoose, Carl E. Evaluation in Health Education and Physical Education. New York: McGraw-Hill, 1961. pp. 46-103.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Identification of Personal Health Needs (cont.)	space at the bottom of this sheet to write additional topics of interest that do not appear on this list. 1. Posture 2. Skin troubles 3. Eye health 4. Hearing difficulties 5. Foot health 6. Weight control 7. Infectious diseases like tuberculosis and venereal disease 8. Heart trouble 9. Cancer 10. Appearance and grooming 11. Fatigue 12. Dental health 13. First Aid 14. Selection of reliable health products and services 15. Effects of alcohol and narcotics 16. Teen-age smoking 17. Maturational processes 18. Child growth and development 19. Family living 20. Nutrition 21. Physical fitness 22. Community health problems (air pollution, water contamination, radiation hazards) 23. International health problems Additional topics: _____ _____	Text and Library Books
	Assign students to conduct a self-evaluation to ascertain their personal health needs. Arrange for them to review their health history and findings with the school physician or nurse. Suggest that students obtain additional informa-	Samples of Health Forms Health and Safety for You. pp. 480-489.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Identification of Personal Health Needs (cont.)	tion concerning individual health needs from parents. Checklists, inventories, rating scales, and similar devices may be employed as a means of collecting data on various aspects of student health needs. Discuss the purposes of periodic health examinations and screening tests. Emphasize that the health examination is a periodic physical checkup of a well patient. Ask the school physician or nurse to discuss the procedures that are usually included. Why does the physician usually begin an examination by reviewing the health history of a patient? Compare the school health examination with a periodic health examination by a private physician. Discuss some of the purposes of the following procedures: 1. Examination of the heart and lungs 2. Measurement of blood pressure 3. Inspection of the eye to determine the condition of tissues, blood vessels, and nerves 4. Observation of the skin for symptoms of paleness or flush, thickness, texture, dryness, acne, and other problems 5. Inspection of the ear canal and eardrum 6. Examination of the mouth, nose, throat, and tonsils	Text and Library Books The National Education Association and the American Medical Association. Health Education. Washington, D.C.: National Education Association, 1961. pp. 217-234. The National Education Association and the American Medical Association. Health Education. Washington, D.C.: National Education Association, 1961. pp. 1-24. Modern Health. pp. 462-464. Health and Safety for You. pp. 483-489. Perry, Thomas, and Alyce Goldsmith. Pathology Tests Look Into Your Future. New York: Public Affairs Committee, 1962. pp. 1-15.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Identification of Personal Health Needs (cont.)	7. Check of the lymph nodes in the neck, armpits, and groin for enlargement 8. Gross examination of the abdominal area to detect enlargement of the liver, spleen, or kidneys 9. Check the pulse rate and body temperature 10. Gross examination of the nervous and skeletal systems 11. Laboratory analysis of blood samples to check for anemia, leukemia, blood loss, and evidence of infection 12. Urinalysis for detection of infection, kidney disease, and diabetes Discuss the purposes of specialized procedures, such as an x-ray examination, skin test, blood chemistry test, electrocardiograph, and electroencephalograph. Exhibit and discuss the use of various appraisal devices, such as the stethoscope, the sphygmomanometer,* the thermometer, eye charts, and the microscope. Discuss appraisal techniques for determining state of growth, posture, physical fitness, and acuity of the special senses. What new instruments are being used in space medicine programs that may have applications for civilian use?	Text and Library Books Perry, Thomas, and Alyce Goldsmith. Pathology Tests Look Into Your Future. New York: Public Affairs Committee, 1962. pp. 1-15. Samples of Health Appraisal Record Forms
Follow-up Care	Discuss the importance of follow-up care of personal health needs. Ask each student to devise a plan of action for	

*Refer to Chapter V for explanation concerning the use of the sphygmomanometer.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Follow-up Care	follow-up of individual health needs. Require a progress report at the close of established time intervals during the semester.	Text and Library Books
INDIVIDUAL RESPONSIBILITIES	Discuss the degree to which each individual is responsible for his own health. To what degree are parents responsible for the health of high school students? To what extent are the school and the community responsible?	
The Healthy Body	Ask the class, "What are the general body requirements that are necessary for human survival?" List students' suggestions on the chalkboard and then request the class to attempt to rank the items in order of importance. Discuss the kinds of research studies that are being conducted by the National Aeronautical Space Administration to obtain additional information on this topic.	Write the National Aeronautical Space Administration
	Review the basic life processes that are common to all body tissues. Ask for examples of the various kinds of tissues that make up the human body. Present a brief overview of the specialized function of each organ system. Use charts and models to illustrate the interrelationships among the organ systems of the body. Emphasize that the condition of an individual's health is dependent upon the degree to which all body systems function smoothly as an integrated unit. Ask the class to suggest some of the ways in which various emotions and tensions may affect body function. How may vasodilator and vasoconstrictor nerves affect blood circulation?	Charts and Models of the Organ Systems Consult a reference book on physiology Modern Health. pp. 5-13. Health and Safety for You. pp. 28-47.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Problems Related to Total Fitness	Point out individual variations in general body requirements. Request the class to develop a list of characteristics that describe a healthy person.	Text and Library Books
The Skin	Ask the class to suggest several reasons for the statement that the skin reflects the health, emotional state, and occupational, or recreational, pursuits of an individual. Discuss skin reactions to various states of emotion and illness. Develop a list of factors on the chalkboard which may be inferred about a person from the condition of his skin.	Los Angeles City Schools, Guarding the Health of Pupils. Modern Health. pp. 18-20. Health and Safety for You. pp. 180-184.
	Use charts and models to present a brief overview of the structures that make up the epidermis (outer) and dermis (inner) layers of the skin. Indicate that --Hair and nails are modified forms of the epidermis. --The outermost cells of the skin (horny layer) are dead and hardened. These cells are being replaced continuously by new cells, which are produced in the germinative layer of the epidermis. The pigment granules (melanin) which produce the color of the skin are also located in the epidermis. --The dermis (corium), or true skin, is composed of fibrous living tissue (mostly collagen) which supports blood vessels, papillae and sensory nerve endings, muscle fibres, oil and sweat glands, and hair follicles. --The subcutaneous layer (subcutis), which lies below the dermis, is composed largely of fat cells.	Charts and Models of the Skin and Hair Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 934-935.
	Arrange for students to view prepared microscopic slides of the skin and hair. A hand lens may be used to examine the surface of the hand. Ask students to press the right thumb against the back of the left hand and to remove it quickly.	Prepared Microscopic Slides

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	Discuss the reason for the difference in color between the point of pressure and the surrounding tissue. Emphasize that the skin is the largest organ of the body (measuring approximately 17 square feet of surface) and that it performs several important functions. Destruction of large areas of the skin may be fatal, as in extensive burns. The skin serves as a 1. Protective covering 2. Regulator of body temperature 3. Organ of excretion 4. Organ of sensation The sebaceous glands secrete an oily substance, called sebum. This substance serves to lubricate the skin and hair. Excessive secretions of sebum, especially during adolescence, produce an oily skin and may be associated with complexion problems and dandruff. Frequent cleansing of the skin with soap and water and regular shampooing of the hair are the best preventive measures against these problems. Proper cleansing of the skin helps to wash away oily secretions before they clog pores. Soap and water are helpful also in removing surface bacteria, thus reducing chances of infection. There are an estimated 8,000,000 micro-organisms on the arms and hands alone; these are attached to the follicles and pores and under the skin surface in sebaceous ducts and glands.[1]	Text and Library Books "Do You Know Your Skin?" (An article reprinted from Today's Health for November, 1956, and revised in 1963), 1-2. Modern Health. pp. 20-21. Health and Safety for You. pp. 100-182. Pamphlets* "The Clean Look You Like." (An article reprinted from Today's Health for October, 1961), 1-4.

[1]Veronica L. Conley, "Do You Know Your Skin?" (Reprinted from Today's Health, November, 1956, 1963 Revision), 1.

*List of Approved Free Supplementary Health Education Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	Since ordinary soap has germicidal properties, medicated soaps are not necessary unless prescribed by a physician. Other preventive measures include balanced diet; avoidance of sweets and fried, greasy foods that may tend to aggravate complexion problems; adequate sleep, rest, and exercise; and emotional health. Discuss several reasons why the squeezing of blackheads, pimples, and pustules should be avoided. Additional practices which should be avoided are self-medication and the use of powder bases, pancake make-up, and other cosmetics which tend to clog pores and to prevent air from reaching the skin. Emphasize that complexion problems are a normal concern of teen-age youth because skin eruptions are closely associated with the glandular changes that take place during adolescence. These eruptions may disappear and recur at regular intervals during the ages when acne is likely to be most troublesome (ages 13-23). Persons with persistent and aggravated acne should see a physician. Dandruff, which results from the accumulation of skin cells that are shed by the outer layers of the scalp, can normally be controlled by regular shampooing and daily brushing. Persistent abnormal dandruff (seborrhea) requires consultation with a physician. Invite the school physician or nurse to discuss some of the medical techniques that are used by dermatologists in treating acne and the scars and pits which sometimes result from the treatment. For example, dermabrasion (skin planing) is a method used in the superficial removal of the upper layers of skin.	Text and Library Books Modern Health. pp. 22-28. Health and Safety for You. p. 184. Los Angeles City Schools. Acne Modern Health, pp. 31-34. Health and Safety for You. pp. 185-186.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	Discuss the harmful effects of prolonged exposure to sunlight. Point out that a higher incidence of skin cancer is reported among persons (farmers, fishermen) whose work requires long hours of exposure to sunlight. Enumerate some of the precautions which should be taken to avoid sunburn. To what extent do suntan preparations provide protection against the powerful rays of the sun? What hazards are involved in the use of sun lamps? Point out that the glands of perspiration are of two kinds, eccrine and apocrine. --The eccrine glands are distributed extensively throughout the body surface, including the soles of the feet and the palms of the hands. These coiled tubular glands begin in the epidermis and continue into the dermis and subcutis. When stimulated by heat or nervous tension, they produce a clear fluid which is commonly referred to as "sweat." --The distribution of the apocrine glands is limited largely to the axillary and anogenital areas of the body. These glands produce a milky fluid, which differs somewhat from the typical "sweat" that is secreted by the eccrine glands and a body odor. Maturation of the apocrine glands is closely associated with the characteristic growth changes which occur during puberty. Since these glands usually do not become active until adolescence, body odor is relatively uncommon among children. Explain that the body odor is produced by the action of surface bacteria on perspiration. Preventive measures against this odor include frequent bathing or showering, the use of an effective deodorant, and frequent change	Text and Library Books Pamphlets* The Buying Guide Issue of Consumer Reports. New York Consumers Union, 1963. pp. 78-82. Modern Health. p. 22. Charts and Models of the Skin. Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 935. "What to Expect From Your Deodorant," (An article reprinted from Today's Health for June, 1963), 1-3. *List of Approved Free Supplementary Health Education Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	of clean clothing. Since axillary hair accumulates both bacteria and perspiration, shaving of the underarm region helps to reduce bacterial action and to facilitate the effectiveness of a deodorant. Discuss the active ingredients in deodorants and anti-perspirants. (Antiseptics, antibiotics, and aluminum salts are examples.) Ask students to compare the ingredients of various deodorants. Point out that, according to the Federal Food, Drug, and Cosmetic Act, the active ingredients of an antiperspirant must be stated on the label, whereas the ingredients of a deodorant may or may not be stated. Ask the class to list several factors which should be considered in choosing a suitable deodorant. Discuss the advantages and disadvantages of various methods of removing superfluous and unwanted hair. Cite some of the hazards in using chemical depilatories and abrasive hair removers. Ask for a report on current methods of removing hair permanently. (Electrolysis is an example.) How is destruction of the hair follicle accomplished? Arrange a display of pictures and of shaving instruments to contrast beard styles and methods of shaving during different periods in history. Why is the practice of shaving basically hygienic? Point out that there is no conclusive evidence which indicates that any one type of razor is best for the skin. In addition to removing both dead and living skin cells along with hair, shaving causes many minute breaks or scrapes. However, this process is not considered harmful and may have beneficial effects. Report that, on the average, man has about 30,000 facial	Text and Library Books The Buying Guide Issue of Consumer Reports. New York: Consumers Union, 1963. p. 52. Modern Health. p. 28. Health and Safety for You. pp. 184-185. Modern Health. pp. 34-35. Health and Safety for You. pp. 190-192. "Science Looks at Your Beard," (An article reprinted from Today's Health for December, 1961), 1-5.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	hairs. They have an average growth rate of almost 0.02 inch per day, or about 0.5 inch per month.[1] The beard usually becomes more coarse and stiff as a boy grows older. Discuss some of the shaving measures that should be taken in the event of ingrown hairs and complexion problems. These include: 1. Shaving in the direction that the hair grows 2. Switching from an electric razor to a safety razor or vice versa 3. Using a new blade with every safety razor shave 4. Softening the beard first with soap and hot water 5. Rinsing first with hot water, following with cold, and then applying an astringent or antiseptic preparation 6. Avoiding the nicking of pimples and shaving only when absolutely necessary. 7. Loosening the free ends of ingrown hairs that have penetrated the skin Arrange a display of shaving preparations and after-shave lotions. Discuss the values of the various ingredients listed. Point out that, in choosing a shaving preparation, boys with oily skin should probably use a lather or aerosol foam preparation which has a high soap content. Boys with dry, sensitive skin should probably use a brushless cream which has a lower soap content.	Text and Library Books Pamphlets* Modern Health. pp. 34-35. Health and Safety for You. pp. 191-192. "Baldness, Man's Oldest Fall Out Problem," (An article reprinted from Today's Health for August, 1963), 1-5.

[1]William R. Vath, "Science Looks at Your Beard," (An article reprinted from Today's Health for December, 1961), 2.

*List of Approved Free Supplementary Health Education Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	Ask for a report on alopecia, or baldness. Discuss various causes of baldness. Point out that sex, age, and heredity are probably the most significant factors in hair loss. However, temporary or permanent hair loss may also be caused by the following: --Infections - fungus, bacterial, viral, or other --Allergies, including reactions to drugs and chemicals --Advanced diabetes --Prolonged mechanical tension resulting from certain hair styles (pony tail), curlers, comb rollers, and the like --Radiation from x-rays and from substances that are radioactive --Certain toxic drugs and chemicals	Text and Library Books Modern Health. p. 34. Health and Safety for You. p. 191.
	Explain that, normally, an adult has approximately 120,000 hairs. On the average, the hairs grow 0.5 inch per month.[1] Hair growth may be retarded by a number of conditions, including disease, various chemicals, cold weather, and radiation. Hair grows for a period of about four to five years, enters a resting stage for several months, and then falls out. New hair growth is started each day to replace the daily loss of about 25 to 100 hairs. When the balance of loss and replacement of hair is upset, thinning and baldness result. Discuss the extent to which hair loss is a problem among both men and women.	"Are American Women Becoming Bald?", (An article reprinted from Today's Health for January, 1962), 1-4.
	Ask for a report on the degree to which hair transplantation has been a successful treatment for baldness.	Modern Health. p. 34.

[1]William R. Vath, "Baldness, Man's Oldest Fall Out Problem," (Reprinted from Today's Health, August, 1963), 2.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Skin (cont.)	Request the class to identify fallacious advertising claims for hair restoration products. Discuss the causes of other skin problems which may be of concern to students, such as warts (viral infection), boils (bacterial infection), and ringworm (fungus infection).	Text and Library Books Los Angeles City Schools. Guarding the Health of Pupils. Health and Safety for You. pp. 186-189.
Dental Health	Discuss the extent to which dental health problems affect high school students. Report the following statistics:[1] 1. More than 9 out of 10 students have dental decay. 2. At age 16, the average student has seven decayed, missing, or filled teeth, involving 14 tooth surfaces. 3. Estimates based on dental surveys indicate that 30 per cent of youth of any age group are in need of some type of orthodontic care. Emphasize that decayed and missing teeth may lead to additional tooth loss, malocclusion, periodontal disease and other health problems. Administer a pretest on dental health concepts. Review briefly the structure and function of the teeth.	American Dental Association. Dental Health Facts for Teachers. pp. 1-28. Modern Health, pp. 38-41. Health and Safety for You. pp. 196-200.

[1] "Your Teeth and How to Keep Them," Today's Health (January, 1961), 61.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Dental Health (cont.)	Use charts and models to show students their present stage of dental development. Indicate that the permanent dentition, except for the third molar, is completed by the time the adolescent period is reached (12-15 years of age). The third molar (wisdom tooth) erupts in the mouth during the late adolescent or young adult period (15-21).	Text and Library Books American Dental Association. Dental Health Facts for Teachers. pp. 4-6. Health and Safety for You. pp. 198-200.
Impacted Teeth	Display dental x-rays and charts of an impacted tooth. Emphasize the need to have a dentist check the status of wisdom teeth that have not erupted and which may be impacted. The following information on this subject was reported to the American Dental Association: Early removal of unerupted or impacted third molars reduces chances of gum infection and loss of other molars. The inflammation of the gum from such a tooth may cause a serious infection. The incidence of this type of gum infection increases with age.[1]	American Dental Association. Dental Health Facts for Teachers. p. 15. Modern Health. p. 41. Health and Safety for You. pp. 203-204.
Dental Caries	Report that dental decay is probably the most prevalent of all known diseases. Approximately 98 per cent of all Americans are affected by it some time during their lives. Assign a special committee to prepare graphs showing the distribution of dental caries in the population. Ask students to organize the information according to geographic location, cities with fluoridation of the water supply, age groups, and other factors.	American Dental Association. Dental Health Facts for Teachers. pp. 9-11. Health and Safety for You. pp. 200-201.

[1] "Today's Health News," Today's Health, (January, 1964), 13.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Dental Caries (cont.)	Use charts and diagrams to illustrate graphically the process of tooth decay. For example, Bacterial plaque + Fermentable foods such as refined sugars and starches → Acids which cause the enamel of the tooth to dissolve and the dentin beneath to become soft and discolored Emphasize that bacteria in the mouth thrive on refined sugars and starches, converting them to decay-producing acids within 3 to 5 minutes. This process continues for an hour or longer. As a result of between-meal treats, the bacteria can be forming decay-producing acids during most of the day. Invite the school dentist to discuss the caries-producing cycle and to demonstrate the use of the microscope-projector for showing bacterial masses directly from the mouth. Review the terms "zooglea" (living glue), "dental plaque," and "material alba." Point out that this is the sticky, gelatinous mass which coats the teeth and mucous membranes and serves as an enveloping, semipermeable barrier within which bacteria and other micro-organisms thrive. This sticky coating is not rinsed away with either hot or cold water. Brushing and the use of dental floss are required for its removal. When brushing is not possible, however, rinsing the mouth is important in neutralizing the acids that are formed immediately after eating. Instruct the class to perform the following demonstration on	Text and Library Books Modern Health, pp. 41-43. "How to Educate High School Students in Oral Hygiene," (Journal of Health, Physical Education, and Recreation, for October, 1960. Reprint). 1-8.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Dental Caries (cont.)	the production of acid by micro-organisms of the mouth. The use of an acid indicator (.02 per cent aqueous methyl red solution) will show that acid is formed when microbial matter from the teeth is added to sugar. 1. Place sufficient scrapings from the tooth surfaces on a tile to form a ½ inch circle. 2. Place two or three drops of the acid indicator on the matter, and then add a few crystals of sugar. Additional dye may be required in order to obtain an intense color. For additional information on this activity, consult the reference which is cited in the resource column. Demonstrate the use of a disclosing tablet as a means of checking how effectively film and debris are being removed from the teeth through brushing. Review pertinent factors concerning the proper method of brushing the teeth. Assign students to study the role of fluoridation in the reduction of tooth decay. Report that dental decay in the teeth of children who drink fluoridated water from birth is 65 per cent less, on the average, than decay in the teeth of children who drink fluoride-deficient water. Point out that the addition of fluorides to the water in the amount of one part of fluorine to one million parts of water (1 ppm) does not affect the taste, color, odor, or safety of the water supply in any way. The process is inexpensive, costing approximately 10 cents per person each year. Ask students to compile a list of professional and scientific organizations that endorse fluoridation of the water supply as a safe and effective method of reducing tooth decay. Some of these organizations are:	Text and Library Books "How to Educate High School Students in Oral Hygiene," (Journal of Health, Physical Education, and Recreation, for October, 1960. Reprint). 3. Obtain disclosing tablets from the Dental Health Section. American Dental Association. Dental Health Facts for Teachers. p. 14. Modern Health. p. 43. Health and Safety for You. p. 201.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Dental Caries (cont.)	American Dental Association American Medical Association American Association for the Advancement of Science American Public Health Association U. S. Public Health Service Association of State and Territorial Health Offices National Research Council	Text and Library Books
	Discuss the application of fluoride to the surfaces of the teeth as a method of combating tooth decay.	American Dental Association. Dental Health Facts for Teachers. p. 13.
	Appoint a committee to find out what various communities are doing about fluoridation. Ask the group to collect current statistics concerning the incidence of tooth decay in persons who live in cities that have fluoridated water. Use these statistics to make comparisons of decay rates in populations of cities without fluoridated water.	
	Prepare a list summarizing the factors which influence the development of dental caries. Such a list should include the following:[1] 1. The presence of dental plaques on the teeth 2. The strength of the acid and the power of the saliva to neutralize it 3. The length of time which the acid is in contact with the teeth 4. Susceptibility of teeth to decay. Heredity seems to be a factor in dental health. Fluoridation is also a factor	"Your Teeth and How to Keep Them." Today's Health, (January, 1961), pp. 59-62.

[1]"Your Teeth and How To Keep Them," Today's Health, (January, 1961), 61.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Periodontal Disease	Report that periodontal disease causes a greater loss of teeth than dental caries in adults after age 25-30. It is estimated that perhaps half the teen-agers and practically all adults suffer from some degree of periodontal disease.[1] Use charts and models to point out the supporting structures of the teeth. Disorders that involve the gums, periodontal membrane, bony sockets, and other supporting structures of teeth are called periodontal disease. The prefix "peri" means around, and the term "odontos" means tooth. The supporting structures of the teeth are subject to a number of disorders, including: 1. Gingivitis--The inflammation of the gums (gingivae) caused by the accumulation of tartar, food deposits, and other conditions which irritate the gums 2. Vincent's Infection ("trench mouth")--The inflammation and ulceration of the gums accompanied by pain and excessive bleeding 3. Periodontitis (pyorrhea)--The gradual deterioration and destruction of the tissues, membranes, and bone which support the teeth and hold them in place Request the school dentist to discuss periodontal disease and other topics that relate to dental health. Obtain diagrams which illustrate the progressive stages of periodontal disease. Characteristic changes include: 1. Tartar (calcareous) deposits accumulate on the teeth at the gum line, causing irritation to the gums (gingivitis)	Text and Library Books "Far Worse Than An Aching Tooth," Today's Health, (February, 1964), pp. 56-59. Modern Health. pp. 44-45. Health and Safety for You. pp. 204-206. American Dental Association. Dental Health Facts for Teachers. pp. 19-20. "Far Worse Than An Aching Tooth," Today's Health, (February, 1964), pp. 56-59.

[1]"Far Worse Than An Aching Tooth," Today's Health, (February, 1964), 56.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Periodontal Disease (cont.)	2. The gums become inflamed, swollen, and tender as the infection progresses and spreads 3. The gums recede from the teeth, forming small pockets in which bacteria, food, and pus collect. This condition promotes further infection and tissue damage 4. The supporting tissue and bone are gradually destroyed, causing the teeth to become loose and movable	Text and Library Books
	In summary, list on the chalkboard the factors which tend to promote periodontal disease. These include: 1. Poor oral hygiene, including the lack of professional care for the removal of calcareous deposits 2. Conditions that produce gum irritation 3. Maloccluded and missing teeth	American Dental Association. Dental Health Facts for Teachers. p. 20.
	Cite some of the potential hazards of badly infected gums.	American Heart Association. Pamphlet Series*
Maloccluded and Missing Teeth	Obtain and display prosthetic appliances that are used in dentistry. Discuss the purposes of each device. Examples are: Space maintainers — Partial dentures Bite openers — Full dentures Bridges	American Dental Association. Dental Health Facts for Teachers. pp. 16-18.
	Discuss the causes of malocclusion. Use models of the teeth to illustrate and compare occlusion and malocclusion. Display pictures of individuals before and after orthodontic treatment. Ask students to list the effects of malocclusion. Cite some	Modern Health. pp. 43-44.

*List of Approved Free Supplementary Health Education Materials: Secondary

CRIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Maloccluded and Missing Teeth (cont.)	of the dental disorders resulting from missing teeth. Ask the school dentist to discuss methods of prevention and treatment of the above conditions.	Text and Library Books Health and Safety for You. p. 204.
Individual Responsibility	Request the class to identify the responsibilities of the high school student in dental health, including oral hygiene, proper diet, and professional dental care. Review the purposes of procedures that are a regular part of professional care. For example: Dental examination and x-rays Prophylaxis Reparative and corrective treatment	American Dental Association. Dental Health Facts for Teachers. p. 15.
	Ask for a report on the professional training and contributions of the various dental health specialists. Discuss the influence of proper diet on dental health. Appoint a committee to develop a list of suitable "treats" and party snacks which are low in refined sugars and starches. Invite a member of the football squad to demonstrate the use of mouth protectors for the prevention of dental injuries. What precautions should an individual ordinarily take to prevent the chipping or breaking of teeth? Formulate a list of criteria for purchasing a toothbrush. Evaluate the effectiveness of various kinds of toothbrushes. Ask a student to look up The Consumer Report ratings for electric toothbrushes. Discuss the advantages and disadvantages of the electric toothbrush. Assign the class to collect and to evaluate advertisements on dentifrices and toothbrushes. Discuss the values of the various ingredients contained in different dentifrices.	Pamphlets* American Dental Association. Dental Health Facts for Teachers. pp. 12-13. *List of Approved Free Supplementary Health Education Materials: Secondary

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Progress in Dental Research	Appoint several students to write to the National Institute of Dental Research for information on current research projects in dental health. Assign a committee to present a report on dental disease in animals living in a germ-free environment. Discuss the possibility of a vaccine against tooth decay. Ask for reports on research programs that are being conducted in the fields of oral hygiene, fluoridation, oral surgery, and orthodontics. Discuss advances in cosmetic dentistry, improved dental anesthetics and drugs, and dental instruments (high speed drills and the like). Assign students to write a paper on "The Importance of Making Dental Health Education More Meaningful."	Text and Library Books "The Remarkable World of Dentistry," Today's Health, (April, 1963), pp. 36-39. "Why Germfree Animals?" Today's Health, (August, 1963), pp. 30-33.
Health of Special Sensory Organs	Ask students to list examples of the variety of stimuli that are being received constantly by the sensory organs. Analyze situations which illustrate how all of these senses collectively enable man to perceive his environment more accurately. For example, ask students to compare the range of stimuli which may be experienced when a person is 1. Viewing an event, such as the Rose Parade, over television 2. Listening to a radio account of the event 3. Being present at the event 4. Reading a newspaper account of it	Modern Health. p. 174. Health and Safety for You. p. 222.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Health of Special Sensory Organs (cont.) The Eye	Which of the above would probably offer the greatest opportunities for recall? Why? Ask students to attempt to rank the senses in order of importance. State that the eye is a light-sensitive organ which is composed of a number of different types of tissue and which may be subject to a variety of conditions that may interfere with its optimum function. In principle, the eye works like a camera. Use charts and models to review briefly the structures that make up the eye. Point out that these structures form a convex lens system which bends light rays reflected from an object and focuses them upon the light-sensitive receptor cells of the retina, the innermost lining of the eyeball. Explain that the focusing of light rays is accomplished largely through changes in the shape of the lens. This process is called "lens accommodation." Normally, the focusing of the eye on distant objects does not require lens accommodation because the light rays reflected from the objects are approximately parallel upon reaching the eye. However, lens adjustments are required for refraction of light rays that are reflected from objects which are closer than 20 feet. These adjustments take place through contraction of the ciliary muscles, which in turn loosen the suspensory ligament. The lens becomes more spherical in shape, thus increasing its refractive power to focus light rays on to the macula (yellow spot), the area of greatest visual acuity. Use charts and models to describe the protective function of various eye structures (eyelids, eyebrows, eyelashes, tear glands).	Text and Library Books Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. p. 379. Charts and Models of the Eye Modern Health. pp. 174-177. Health and Safety for You. pp. 223-226.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Common Problems Vision Defects	Demonstrate the use of the Snellen Eye Chart as a means of testing visual acuity. Discuss the meaning of vision test results that are expressed in fractions, as the following: 20/20, 20/40, and 20/200. The distance of the person being examined from the chart is represented by the numerator, and the lowest line read accurately is represented by the denominator. Point out that refractive errors, the results of defects of the eye in which images do not focus properly on the retina, are relatively common. Demonstrate the refractive power of different lens shapes that are used to correct errors in focusing, such as the following: --Hyperopia, or farsightedness, is quite common among young children. It is the result of the eyeball's being too short from front to back, which causes the images of close objects to fall behind the retina. Prescription glasses which contain convex or converging lenses are usually required for the correction of farsightedness. --Myopia, or nearsightedness, is a condition which occurs because the eyeball is too long. This causes the images of distant objects to fall in front of the retina. The majority of cases of myopia are correctable through the wearing of prescription glasses which contain concave or divergent lenses. --Astigmatism is the result of an irregular curvature of the cornea or lens. Some of the light rays fall in front of the retina, and others fall behind it, thus causing uneven focus. Explain that strabismus, or squint, is a condition in which	Text and Library Books The National Education Association and the American Medical Association. School Health Services. Washington, D. C.: National Education Association, 1964. pp. 71-89. Modern Health. pp. 177-181. Health and Safety for You. pp. 226-27.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Vision Defects (cont.)	the muscles controlling the movements of the eyes do not work in coordination. The most common types are cross-eyes and wall-eyes. This defect can be corrected by prescription glasses and other techniques, including surgery.	Text and Library Books "Tracking Down the Enemies of Vision," Today's Health, (November, 1963), pp. 52-57.
	Demonstrate the use of tests for color discrimination. The color plate test requires the ability to identify a pattern of colored dots on a background of a similar color. Point out that color blindness is an inherited (sex-linked) condition, in which the color-sensitive cones of the retina are not receptive to color. Discuss some of the ways in which persons who are color blind adjust to this defect. The three basic types of color blindness are red-green, yellow-blue, and total color blindness. How do various colors appear to individuals with these defects?	Modern Health. p. 176. Health and Safety for You. pp. 224-225.
	Discuss the effects of glare. Why is an automobile driver required to dim the headlights of his car when approaching another vehicle? Ask for a report on "nightblindness."	Modern Health. p. 180.
	Arrange an exhibit on eyeglasses. Ask for a special report on the advantages and disadvantages of corneal lenses.	
Infections	Discuss some of the causes of conjunctivitis, or "pink eye." Point out that, in addition to infections, conjunctivitis may result from an allergy or from eye irritation. Infections of the eyelash root or at the marginal glands of the eyelid are commonly referred to as "styes".	Los Angeles City Schools. Guarding the Health of Pupils. Modern Health. p. 183. Health and Safety for You. pp. 227-228.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Special Problems	Ask for a special report on the fight against trachoma. Report that this blinding virus disease affects approximately 500 million people, nearly a sixth of the world's population. Report that cataract, or cloudiness of the lens of the eye, affects young people as well as old. It also affects animals. Cataract also may result from other specific diseases, from injuries, and from x-rays and other forms of radiation. Congenital cataracts have been traced to an attack of German measles in the mother during the first three months of pregnancy. Specific metabolic defects such as galactosemia and diabetes, may also be responsible for cataracts. Discuss the prevention and treatment of this condition. Explain that glaucoma is caused by improper drainage of the fluid (aqueous humor) within the eye. Use charts to indicate which parts of the eye are filled with this fluid. Normally, the fluid is regulated carefully to maintain the shape and consistency of the eye. Improper drainage causes fluid accumulation and increased pressure, which damages the fragile eye structures. Discuss medical treatment for this condition. New medicines as well as surgery are useful in the prevention of blindness from glaucoma. Cite the effects of corneal clouding or scarring. Point out that this condition can be caused by either infection or injury. Discuss the prevention and treatment of this condition. Discuss briefly the causes of detachment of the retina.	Text and Library Books "Trachoma," Scientific American, 210 (January, 1964), 84. "Cataract: The Fog That Blinds," Today's Health, (January, 1961), pp. 56-58. Modern Health, pp. 183-186. Health and Safety for You. pp. 228-229. "Tracking Down the Enemies of Vision," Today's Health, (November, 1963), pp. 52-57.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Individual Care	**Develop a list on the chalkboard of health practices for care of the eye, especially as they relate to the following:** 1. **Protection of the eye from sources of contamination, irritation, and injury** 2. **Provision of adequate lighting for the performance of various tasks** 3. **Periodic medical examinations and screening tests** 4. **Follow-up of visual problems, including the wearing of eye glasses as prescribed** 5. **Selection of a nutritious diet** 6. **Discrimination in the use of eye preparations and cosmetics** 7. **Conditions for viewing television** **Appoint a committee to study lighting conditions in various locations in the school plant. How do the findings compare with recommended standards?**	Los Angeles City Schools. Guarding the Health of Pupils. Los Angeles City Schools. Your Child's Health. Modern Health. pp. 186. Health and Safety for You. pp. 230-233.
Medical Advice and Care	**Assign special reports on the training, licensing, and contribution of each of the following specialists:** **The ophthalmologist** **The optometrist** **The optician** **List some of the symptoms of eye trouble. Invite the school nurse to discuss disorders of the eye for which medical advice is needed.** **Contrast a visual screening test with an examination by an ophthalmologist.**	Los Angeles City Schools, Health Education and Health Services Branch. Handbook for Administrators and Their Staffs. Modern Health, p. 181. Health and Safety for You. p. 231. Los Angeles City Schools. Guarding the Health of Pupils.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Recent Research Developments	Assign a committee to report recent research developments in eye health. Ask a student to write to the National Institute of Neurological Diseases and Blindness for information on this topic. Request a committee to report on the contribution of the Braille Institute. Ask the students to find out what promising educational techniques and activities are being conducted in programs for the visually handicapped.	Text and Library Books "Tracking Down the Enemies of Vision," Today's Health, (November, 1963), pp. 52-57. Modern Health. p. 186.
The Ear	Ask students, "What two senses are associated with the ear?" Discuss the extent to which a television program is intelligible without the sound. Point out that, without hearing, speech development is greatly hampered. Report that an estimated 3 million children in the United States have impaired hearing. Employ tuning forks and other vibrating devices to demonstrate that the sounds which are detected by the human ear are produced by vibrations. Sound waves are transmitted through the air and are picked up by the ear much like a telephone system, in which a transmitter sets up electrical vibrations that are changed by a receiver into audible sounds. Use charts and models to explain how the various structures of the ear collect sound vibrations and convey them to the auditory nerve for transmission to the brain. The ear may be divided into three parts, as follows: --The outer ear, for receiving sound vibrations. --The middle ear, for transferring sound vibrations to the lymph fluid of the inner ear.	Los Angeles City Schools. The School Audiometry Program. Modern Health. pp. 186-190. Health and Safety for You. pp. 233-234. Consult a textbook on the Physics of Sound. Charts and models of the ear. Consult a textbook on Physiology.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Ear (cont.)	--The inner ear, for transposing the vibrations into nerve impulses, which are then conducted to the auditory centers of the brain. In the brain, the impulses are interpreted as sound. The inner ear also contains the semi-circular canals which share an important role with the eyes in maintaining equilibrium. Indicate that motion sickness results from overstimulation of the nerve endings of the semi-circular canals. These tiny, fluid-filled canals may be likened to a builder's level.	Text and Library Books U. S. Department of Health, Education, and Welfare. How to Protect Your Hearing. (U. S. Government Printing Office, Washington 25, D.C.).
Individual Care Common Problems	Point out that the ear is protected against dirt and other foreign bodies by the tiny hairs and wax glands that are located in the auditory canal. Accumulations of wax may obstruct hearing temporarily. The wax is easily removed by a physician. Prying the wax out with a toothpick or other pointed instrument may result in damage to the ear drum. Use charts and models to indicate the relationship of the ears to the nose and throat. Discuss the role of the eustachian tube in equalizing the pressure on both sides of the ear drum. Point out the mastoid bone. Report that infections of the middle ear are a major cause of hearing impairment. Some of the infections which may reach the middle ear through the eustachian tube are colds, tonsillitis, sinusitis, measles, and scarlet fever. The infection may spread to the mastoid bone which adjoins the middle ear, causing mastoiditis. An injury may also damage the middle ear. Prompt medical treatment is required for infections or damage. Antibiotic drugs have proved effective in controlling middle ear infections.	Modern Health. pp. 188-189. Health and Safety for You. pp. 235-236.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Common Problems (cont.)	Develop a list of practices for avoiding infections of the middle ear. Discuss the effects of swimming and diving on the ears. How do loud and continuous noises affect the ear?	Text and Library Books Health and Safety for You. pp. 237-238.
Special Problems	Indicate that otosclerosis, or hardening of the bone, is a disorder in which the small bones of the ear and the ear drum cannot vibrate freely. This condition results from the formation of spongy bone about the stapes and accounts for a small number of cases of deafness. Explain that hearing impairments may be classified generally as either of two types, conductive or sensorineural. The conditions that have been mentioned thus far are classified as conductive because, in each case, the sound vibrations are not conveyed effectively from either the outer or middle ear to the nerve endings of the inner ear. Perceptive hearing losses may result from disorders involving the internal ear, the nerve pathways from the ear to the brain, or the auditory centers in the brain. Infections of the brain (such as meningitis), birth injuries, and hereditary factors are among the causes of sensorineural hearing impairments. Ask for a special report on school and community programs for the hard of hearing. Request a student report on the work of the John Tracy Clinic.	The National Education Association and the American Medical Association. School Health Services. Washington, D. C.: National Education Association, 1964. pp. 96-97. Modern Health. pp. 189-190. "Auditory Localization," Scientific American, 205 (October, 1961), pp. 132-142.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Medical Advice and Care (cont.)	In the whisper test, the person to be examined is seated with one ear toward the examiner, who is 10 feet away. The subject is asked to repeat the sounds that are audible to him. Subjects who must be 4 or more feet closer than other persons to hear whispered words are examined to determine whether they have a hearing impairment. In the watch-tick test, the subject is asked to detect the sound of a watch instead of a whisper. Discuss screening procedures by means of an audiometer. Ask for a report on the audiometer testing program in the schools. Explain that all hearing tests are performed on instruments named pure tone audiometers, which emit tones that range from a low growl to a high squeak. The amplitude of the tones is set at 10 or 15 decibels, depending on the room noise. The decibel is a unit of sound intensity, representing the smallest change in amplitude (volume) that can be detected by the normal human ear. At a distance of 4 feet, an average whisper produces 20 decibels. If the student responds to all tones at the amplitude of 10 or 15 decibels, his hearing is considered normal. If the tones are unheard, the audiometrist tests to determine at what volume the subject begins to hear the tone faintly. A loss of 15 decibels or more in 2 tones or more on a retest indicates the need for medical examination. Emphasize that screening is only a preliminary procedure and that students with significant hearing loss on screening tests, or who are suspected of having other ear difficulties, should be referred to a physician.	Text and Library Books The National Education Association and the American Medical Association. School Health Services. Washington, D.C.: National Education Association, 1964. pp. 93-108. Health and Safety for You. pp. 236-237. Los Angeles City Schools. The School Audiometry Program. Modern Health. p. 189.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Medical Advice and Care (cont.)	Develop a list of symptoms of ear trouble. Ask students to name the appropriate medical adviser to consult for each problem. Ask for a special report on the professional qualifications and services of the otologist. What are the professional qualifications of an audiometrist? Assign a report on the advantages and disadvantages of the major types of hearing aids that are available.	Text and Library Books Los Angeles City Schools. Guarding the Health of Pupils. Los Angeles City Schools. The School Audiometry Program.
Recent Research Developments	Assign a student to write to the American Hearing Society for information on recent advances in ear health. Request students to scan recent periodicals for articles on promising treatments for ear problems.	
Nose and Throat Individual Care	Request students to develop a list of health practices for protection of the nose and throat. Discuss ways of protecting them from infections and irritants. Relate the importance of room temperature and humidity to maintaining the health of the mucous membrane linings. Discuss the effects of smoking on the nose and throat. Point out the dangerous aspects of the ingestion of caustic substances, such as lye, on the tissues of the throat and the esophagus. Discuss the prevention and treatment of disorders involving the following tissues: Tonsils, Adenoids, Pharynx, Larynx, Sinuses, Nasal membranes Evaluate the use of nasal drops and sprays in the treatment	Los Angeles City Schools Guarding the Health of Pupils. Modern Health. pp. 344-348. Health and Safety and You. pp. 209-216.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Individual Care (cont.)	of colds and sore throats. Assign a report on the roles of the nose and tongue in taste and smell.	Text and Library Books Modern Health. p. 141.
Medical Care and Advice	Ask the class to identify symptoms of nose and throat problems which may require the attention of a physician. List the various medical specialists who treat disorders of the nose and throat.	Los Angeles City Schools. Guarding the Health of Pupils.
Recent Research Developments	Request a report on recent advances in the prevention and treatment of infections of the nose and throat. Ask a student to report on recent findings concerning the senses of smell and taste. Ask a student to report on the rehabilitation of persons with destruction of the larynx. What principles are involved in esophageal speech?	"The Stereochemical Theory of Odor," Scientific American, 210 (February, 1964), 42-49.
Foot Health The Healthy Foot	Arrange a display on foot health. Obtain a collection of shoes from the county museum which are representative of different cultures and historical periods. Exhibit photographs and other illustrations and samples of appropriate shoes for various occasions. Emphasize that most teenage activities and sports require strong, healthy feet. Although 99 per cent of all individuals are born with perfect feet, approximately 80 per cent develop some type of foot problem by the time they have reached high school age.[1] Persistent fatigue, reduced	Displays and Special Exhibits may be arranged through local stores.

[1] "What Are We Doing to Our Children's Feet?" School Health (January, 1960), 2.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Healthy Foot (cont.)	circulation, and other discomforts have been associated with poor foot health. Use charts, diagrams, and models to indicate how the various structures of the foot are designed to provide support of the body weight, locomotion, and shock absorption. Indicate that: --The 26 bones of the foot are held together by tough resilient bands called ligaments, muscles attached to the bones by tendons, and other connective tissue. --The bones are grouped to form two arches (longitudinal and transverse) which act like springs in transferring the weight of the body to the ground at the heel, outer border, and ball of the foot and toes. The ligaments and muscles of the foot keep the arches from spreading. Present a brief overview of the growth and development of the foot. Discuss the statement that, "It takes 20 years to grow a foot." Use audiovisual aids to compare the extent of ossification of the bony structures at different growth stages. For example, the foot of a newborn infant is largely cartilaginous and has little or no arch. Emphasize that the foot is highly pliable and that its shape is easily altered at any age. Point out that the healthy foot has adequate circulation. Ask students to find their pulse in the foot by placing the finger tips along the top of the foot next to the long bone (between the fourth and fifth metatarsals). Constriction or pressure which restricts or impairs the flow of blood to and from the foot may lead to serious problems.	Text and Library Books Loman, Charles L. and Carl H. Young. Postural Fitness. Philadelphia: Lea and Febiger, 1960. pp. 39-40. Modern Health. pp. 268-269. Health and Safety for You. pp. 330-331. Los Angeles City Schools. Foot Health Fact Sheet. p. 1. Loman, Charles L. and Carl H. Young. Postural Fitness. Philadelphia: Lea and Febiger, 1960. pp. 41-49. Los Angeles City Schools. Foot Health Fact Sheet. p. 2.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Healthy Foot (cont.)	Use a pedo-graph or similar technique to take the footprints of students. Ask students to analyze their prints and to compare them with illustrations of common foot divergencies. Request students to make an outline drawing of their shoes by placing them on sheets of paper and tracing around them with a pencil. Then instruct the students to superimpose a foot-print, or an outline of the foot, onto the drawing of the shoe. Ask them to note the extent to which these patterns articulate. Point out that foot patterns develop when the foot is crowded into a shoe that is too short and too narrow, or when the shoe does not provide adequate support.	Text and Library Books
Foot Problems	List on the chalkboard the most important causes of foot problems. These include: Failure to stand and walk properly Improper footwear (shoes and socks) Overweight Muscular weakness of the foot and leg Excessive strain from constant walking on hard surfaces	Los Angeles City Schools. Foot Health Fact Sheet. p. 2. Modern Health. p. 271.
Foot Faults	Discuss some of the causes of weak, pronated feet. Point out that the height of the arch varies from individual to individual and that it is no indication of foot strength. The condition of flat feet may be normal for some individuals and is not considered serious unless accompanied by other symptoms. Emphasize that arch supports should not be used except as prescribed by a physician. Invite the corrective physical education teacher to discuss correct foot and leg alignment for standing and walking posture. Ask the teacher to suggest a series of exercises for the feet and legs.	Loman, Charles L. and Carl H. Young. Postural Fitness. Philadelphia: Lea and Febiger, 1960. pp. 39-48. Los Angeles City Schools. Corrective Physical Education Guide for Junior and Senior High Schools.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Improper Footwear	Point out that inappropriate and badly fitted footwear (shoes and socks) is largely responsible for many foot problems, including the following: --Corns and calluses. Overgrowths of the skin's horny layer caused by friction and pressure. The corn is usually conical and contains a core. The callus, which covers a larger surface area than the corn, is a thickening and hardening of the skin. --Bunions. Displacement of the toe toward the midline of the foot, accompanied by a thickening and swelling of the surrounding tissues. This condition is caused by shoes that are too short and too narrow. --Blister. Collection of fluid between the layers of the skin as a result of friction, heat, and the like. --Hammer toes. Deformity of the toes in which ends of the toes turn downward caused by shoes that are too narrow and too tight. --Arch stress. Strain of the longitudinal or metatarsal arch which may result from malalignment of the leg and foot, excessive weight, high-heeled shoes, and constant walking on hard surfaces with soft-soled shoes. --Ingrown toenail. Growth of the outer margin of the nail inward until it re-enters the skin. This condition is caused by tight footwear and improper trimming of the nails. The nails should be cut straight across and not too short. Discuss appropriate shoes for various occasions (sandals, high heels, tennis shoes, ballet slippers, boots). Appoint a committee to conduct a survey during the lunch period to find out what types of school shoes are worn by boys and girls. How well do the shoes represented meet the standards of an appropriate school shoe?	Text and Library Books Los Angeles City Schools. Foot Health Fact Sheet. pp. 3-4. Modern Health. pp. 271-272. Modern Health. p. 36. Loman, Charles L. and Carl H. Young. Postural Fitness. Philadelphia: Lea and Febiger, 1960. pp. 41-42.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Improper Footwear (cont.)	Ask the class to formulate a list of criteria for the selection of properly fitting shoes. Appoint a committee to role play "how to buy a shoe." Suggested questions for follow-up might include: 1. How did the salesman determine shoe size? 2. If he did not have the proper size in a particular style of shoe, did he show a different size? 3. Did he attempt to analyze the particular foot needs of the individual and make appropriate recommendations? 4. How did the consumer determine whether the shoe fit properly?	Text and Library Books Los Angeles City Schools. Foot Health Fact Sheet. pp. 2-3. Modern Health. pp. 270-271. Health and Safety for You. pp. 331-332.
	Evaluate various kinds of shoe materials for durability, support, and ventilation.	
	List on the chalkboard criteria for the selection of properly fitting socks. Evaluate the effectiveness of various types of sock materials in terms of their capabilities of absorbing moisture and protecting the skin from the inner surface of the shoe.	Los Angeles City Schools. Foot Health Fact Sheet. p. 3
	Ask a student to report the school's dress code for footwear. How does this code correlate with recommended foot health practices?	
Infections	Discuss the various infections which may attack the foot.	Los Angeles City Schools. Foot Health Fact Sheet. pp. 3-4.
	Request a special report on the cause and prevention of the fungus infection which is commonly referred to as "athlete's foot." Point out that the fungus is normally present on healthy feet. Infection occurs only when the skin's normal resistance against these micro-organisms is lowered. Skin care is the key factor in the prevention of athlete's foot	Modern Health. p. 271. Health and Safety for You. pp. 186-187.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Infections (cont.)	as well as other infections. Foot baths in locker rooms are of no value. The following measures should be emphasized for the prevention of "athlete's foot": 1. Keep the feet clean and dry. 2. Wear clean socks or "peds" daily. 3. Avoid wearing non-porous leather shoes, sneakers, and rubber-soled shoes for long periods.	Text and Library Books
	Report that plantar wart, a virus infection occurring on the sole of the foot, requires medical treatment for its removal. This condition may become very painful. The warts seem to appear most often on parts of the foot that are subject to pressure.	"A Dermatologist Talks About Warts," Today's Health (March, 1963). p. 4.
	Discuss first aid procedures for blisters. Emphasize that special care should be taken to reduce chances of infection from blisters, ingrown toenails, breaks in the skin, and other irritations.	
General Care	Develop and administer a check list on individual care of the feet. Point out that in addition to foot hygiene, posture, and appropriate footwear, nutrition and weight control are important factors for optimum growth and functioning of the feet and legs. Exercise and rest are important, too. Exercise increases circulation and strengthens muscles of the feet and legs. Rest, usually by elevating the feet, massage, and alternate baths of hot and cold water are helpful for "tired feet."	Los Angeles City Schools. Foot Health Fact Sheet. p. 4.
	Request students to develop a list of foot conditions which require medical advice. Then ask them to choose the type of medical specialist whom they would consult regarding each problem.	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
General Care (cont.) Physical Activity and Fitness Concept of Physical Fitness	Ask for a report on the training and qualifications of various health advisers who specialize in problems of the foot. Ask the class, "What is physical fitness and how does it contribute to total fitness?" Emphasize that, as an element of total fitness, physical fitness has many facets which may be attributable to both heredity and environment. Fitness entails optimum health, including freedom from disease, proper nutrition, adequate rest and sleep, and proper medical and dental care, as well as sufficient capacity to meet the demands of daily living without undue fatigue or stress. Instruct students to formulate their own definition of physical fitness and to compare it with the definitions from several authoritative sources. Following is a definition by the President's Council on Youth Fitness:[1] In a technical sense, physical fitness can be viewed as a measure of the body's strength, stamina, and flexibility. In more meaningful personal terms, it is a reflection of your ability to work with vigor and pleasure, without undue fatigue, with energy left for enjoying hobbies and recreational activities and for meeting unforseen emergencies. It relates to how you look and how you feel - and, because the body is not a compartment separate from the mind, it relates to how you feel mentally as well as physically.	Text and Library Books The American Medical Association and the American Association of Health, Physical Education and Recreation, "Exercise and Fitness." (An article reprinted from the Journal of the American Medical Association for April 5, 1958), 1-6.

[1]President's Council on Physical Fitness, Adult Physical Fitness (U. S. Government Printing Office, Washington, D. C.), p. 5.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Beneficial Effects of Physical Activity	Cite some of the beneficial effects of muscular activity on the body. Point out that such activity helps the individual to develop sufficient strength, endurance, flexibility, and agility to enable him to reach the degree of physiological development that is required for vigorous daily living. Emphasize the advisability of a medical checkup before embarking on any extensive physical fitness program. Analyse the following list of beneficial effects resulting from muscular activity. These have been cited by authoritative sources. 1. Cardiovascular and respiratory function are improved. The normal heart and circulatory system become more efficient in moving blood to active regions when repeatedly required to do so.[1] The pumping action of the heart becomes more efficient, resulting in greater cardiac output. (More blood is pumped per stroke with fewer strokes per minute.)[2]	Text and Library Books Exercise and Fitness. A Collection of Papers Presented at the Colloquium on Exercise and Fitness. Chicago: The Athletic Institute, 1960. 248 pp. Modern Health. pp. 287-293. Health and Safety for You. pp. 333-337. Health and Fitness in the Modern World, A Collection of Papers Presented at the Institute of Normal Human Anatomy Viala Regina Elena and The Ministry of Foreign Affairs. Chicago: The Athletic Institute, 1961. 392 pp.

[1] Joint Committee of the American Medical Association and the American Association for Health, Physical Education, and Recreation, "Exercise and Fitness" (An article reprinted from the Journal of the American Medical Association for April 5, 1958), 2.

[2] Hans Kraus and Wilhelm Raab, Hypokinetic Disease. (Springfield, Ill.: Charles C. Thomas, 1961), p. 62.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Beneficial Effects of Physical Activity (cont.)	The peripheral blood flow from the body's extremities back to the heart becomes more efficient. This is especially true in the veins of the legs, where the flow of blood is directed against the forces of gravity.[1] Pulmonary function becomes more efficient, resulting in a greater exchange of oxygen and carbon dioxide both in the lungs and in the muscles, a slower rate of breathing, and a corresponding economy of respiration.[2] Improved muscular action of the diaphragm aids in the movement of air as well as blood into the chest cavity.[3] 2. Nervous tension is reduced. Resistance to fatigue is developed. Relaxation and sleep are greatly enhanced as a normal outcome of muscular fatigue.[4] 3. Posture and weight control are improved through increased muscle tonus and by greater caloric expenditure.[5] 4. Sprains, strains, and other injuries due to muscle insufficiency are greatly reduced.[6]	Text and Library Books Kraus, Hans, and Wilhelm Raab, Hypokinetic Disease. Springfield, Ill.: Charles C. Thomas, 1961. 193 pp.

[1]Paul Dudley White, "The Advantages of Physical Fitness" (An article reprinted from the Illinois Medical Journal for October, 1959), 1-2.

[2]Hans Kraus and Wilhelm Raab, Hypokinetic Disease (Springfield, Ill.: Charles C. Thomas, 1961), p. 58.

[3]Ibid., p.v.

[4]White, op. cit., 2.

[5]Hans Kraus and Wilhelm Raab, Hypokinetic Disease (Springfield, Ill.: Charles C. Thomas, 1961), pp. 4-7.

[6]Ibid., p. 6.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Beneficial Effects of Physical Activity (cont.)	5. The appetite, gastric and intestinal digestion, and the normal function of the bowels are in general better in those persons who are in good physical condition from exercise than in those leading a very sedentary existence.[1] Cite some of the effects of prolonged inactivity. Ask a student to report the findings of recent studies on prolonged inactivity in relation to fitness for interplanetary travel. Ask the class to suggest several reasons why hospital patients are usually advised to walk and exercise as soon as possible. Assign a special report on the role of exercise in the prevention of heart disease. Point out that the findings of several research studies show a higher rate of heart attacks among the sedentary than the physically active.	Text and Library Books
Physiological Reactions to Muscular Activity	Arrange a demonstration to illustrate the effects of exercise on the rate of heartbeat. Assign the class to work in pairs. The first student should monitor the pulse rate of the second as follows:* 1. While lying down 2. While sitting 3. While standing	

[1]Hans Kraus and Wilhelm Raab, Hypokinetic Disease (Springfield, Ill.: Charles C. Thomas, 1961), p. vi.

*To monitor the radial pulse, place three fingers over the artery which lies in the groove on the thumb side of the wrist.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Physiological Reactions to Muscular Activity (cont.)	4. After hopping in rapid succession 25 times first on the right foot and then 25 times on the left. 5. After a two-minute rest period and at two-minute intervals during rest until the pulse has returned to normal. (Students excused from regular physical education should not participate in this part of the exercise.) Instruct students to make graphs illustrating the results of pulse rate changes from varying amounts of physical exertion. Compare the findings for boys and girls. Record the time that it takes for the pulse to return to normal, and compute class averages for boys and girls. Conduct a similar demonstration to illustrate changes in blood pressure as a result of varying amounts of physical exertion. Arrange for students to monitor their vital capacity by means of a spirometer. Point out that vital capacity, the maximum volume of air which can be forced out of the lungs after taking a deep breath, is considered to be a measure of endurance. Vigorous physical activity helps to increase lung capacity. Conduct the following demonstration to illustrate that greater amounts of carbon dioxide are exhaled in the breath as a result of exercise: 1. Fill two half-pint bottles 2/3 full of water and add two drops of 1 per cent solution of sodium hydroxide to each. Add enough phenolphtalein indicator drop by drop to make the solution in each bottle turn red.	Text and Library Books Wilgoose, Carl E. Evaluation on Health Education and Physical Education. New York: McGraw-Hill, 1961. pp. 104-124. Wilgoose, Carl E. Evaluation on Health Education and Physical Education. New York: McGraw-Hill, 1961. pp. 133.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Physiological Reactions to Muscular Activity (cont.)	2. Ask for a volunteer to blow his breath into the solution by means of a straw. Instruct the student to continue this activity until the carbon dioxide in the breath causes the solution to become colorless. Record the time that is required for the solution to lose its color. 3. Request the same student to touch the floor 25 times in quick succession and then to blow into the second bottle. Record the time that is required for the solution to lose its color. Compare the results before and after exercise. Make a comparison on the chalkboard of the general reaction of a physically fit person and a sedentary person of the same weight to the same amount of physical exertion. For example: Fit / Sedentary Oxygen consumption — Lower / Higher Pulse rate during activity — Lower / Higher Blood pressure during activity (systolic) — Lower / Higher Fatigue level — Higher / Lower Vital capacity — Greater / Smaller Return of pulse to resting after activity — Faster / Slower Muscle flexibility — Higher / Lower Muscle strength — Higher / Lower Ask for a report on the physical fitness tests that are used in the physical education program. What does each of the tests measure? How do the test results for this school compare with established averages for the city?	Text and Library Books Consolazio, Frank C., Robert E. Johnson, and Louis J. Pecora. Physiological Measurements of Metabolic Functions in Man. New York: McGraw-Hill, 1963. p. 341. Los Angeles City Schools. Report on the Physical Fitness of Los Angeles City School Pupils, Grades 5 Through 12. 1962.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Physiological Reactions to Muscular Activity (cont.)	Request students to develop a suggested exercise program for keeping physically fit.	Text and Library Books
Contributions to Posture and Body Build	Discuss the contributions of muscular activity to posture and body development. Use charts and models to present a brief overview of the body framework and its supporting structures. Indicate that the muscles and ligaments hold the bones together and make the body's erect posture possible.	Kraus, Hans, and Wilhelm Raab, Hypokinetic Disease. Springfield, Ill.: Charles C. Thomas, 1961. pp. 9-26.
	Ask for a definition of the term "muscle tone." Emphasize that sufficient muscle development, or tone, is necessary for holding the various body segments in proper alignment. Point out that proper amounts of the right kinds of exercise increase muscle strength, help to firm flabby muscles, and contribute to posture improvement.	Modern Health. pp. 242-262.
	Differentiate between isometric and isotonic exercise. Discuss the values and limitations of each type.	
	Request the class to develop a list of factors which may affect body posture. Ask such questions as the following:	Modern Health. pp. 264-269.
	--What effect may body type or structure have on posture? --How may daily health practices in relation to diet, work, rest, and sleep affect posture? --How may an emotional condition affect posture? --How may poor habits of standing, walking, and sitting affect posture?	Los Angeles City Schools. Corrective Physical Education Guide. Modern Health, pp. 264-268.
	Use illustrations and photographs to analyze correct posture. Ask the class to prepare a list of common postural deviations. Arrange for a committee to demonstrate a series of exercises that have been recommended by the corrective physical education teacher for the elimination of these conditions.	

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Contributions to Posture and Body Build (cont.)	Ask each student to judge his posture by first standing before a full-length mirror and then by walking toward and away from it. Instruct him to write a report of his evaluation and to compare it with an appraisal by the nurse or physical education teacher.	Text and Library Books
Balance of Work, Rest, Physical Activity, and Recreation	Discuss the need of a planned daily program which allows sufficient time for work, study, rest, and relaxation. Report that "not having enough time for the things that I really want to do" and "feeling tired much of the time" are among the problems which are expressed most frequently by high school students. Ask the class, "How much time should be devoted to various types of activities?" Divide the class into small discussion groups to formulate an optimum schedule for a 24-hour period. Instruct students to include both a typical school day and a Saturday or Sunday. Record the recommendations of the various committees on the chalkboard, and use them as a basis for formulating a schedule that is agreed upon by a majority of the class. Assign each student to evaluate his daily activities in terms of the optimum schedule developed by the class. Ask for volunteers to conduct a survey of the average amount of time devoted by students to various types of activities. Suggest that the findings be submitted for publication in the school newspaper.	Los Angeles City Schools. Fatigue.
Fatigue	Ask students, "What is fatigue? How does it serve as one of the body's protective devices?" Review some of the symptoms and results of fatigue. Point out that fatigue is a normal physiological reaction which may result from a	Los Angeles City Schools. Fatigue. Modern Health. pp. 274-283.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Fatigue (cont.)	number of causes, including muscular exertion and nerve stimulation as well as psychological boredom. Ask the students to flex and to straighten the index finger in rapid succession as many times as they can. Point out that they will soon experience loss of coordination of the finger and pain. If they continue the exercise long enough, they will be unable to flex the finger. After a brief rest period, the finger will return to normal. Analyze with students the physiological basis of fatigue. Differentiate between normal and chronic fatigue. Point out that normal fatigue is a general reaction to physical or mental exertion which is relieved by proper rest. Chronic fatigue is prolonged and may result from any of a number of conditions, including:[1] 1. Physical activities that are excessive and continued over a long period without day to day recuperation and elimination of fatigue products. 2. Mental effort or strain, prolonged or intense, without time for recovery. This type is very harmful because it usually involves little physical activity and insufficient release of nervous energy. 3. Chronic illnesses, low-grade infections, or incomplete convalescence. Such causes are often difficult to identify but should be suspected when rest, a well-balanced diet, and adequate care do not relieve tiredness. [1]Los Angeles City Schools, Fatigue, p. 6.	Text and Library Books Health and Safety for You. pp. 338-340. Modern Health, pp. 278-284.

UNIT I

ORIENTATION TO HEALTH NEEDS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Fatigue (cont.)	Request the class to suggest ways to overcome fatigue resulting from various kinds of activity. Discuss how the development of muscular strength and endurance may help to overcome or to prevent fatigue. Discuss how a change of activity may help to relieve the condition. Ask a committee to identify the various recreational activities that are offered at school and at neighboring community centers.	Text and Library Books
Stress	Appoint a committee to dramatize typical stress situations with which high school students are frequently confronted. Show how a balanced regimen can help the body to tolerate and to adapt to the normal stresses which arise from everyday living. Illustrate how the problem-solving approach may be applied in finding constructive solutions to typical stress situations. How does talking about a problem with a parent or trusted friend help to relieve stress? Point out that abnormal stress resulting from extreme and prolonged overexertion may lead to exhaustion and collapse. Persistent emotional stress may upset the glandular balance (homeostasis) of the body, causing tensions and strains which produce chronic fatigue and which may lead to disease and to injury.	Hilgard, Ernest R. Introduction to Psychology. New York: Harcourt, Brace, 1957. pp. 51-53. Modern Health. pp. 278-284. Health and Safety for You. p. 334.
Sleep	Assign the class to develop a list of factors which should be considered in determining the amount of sleep that a high school student should have. Conduct a survey during the noon hour to determine the average number of hours sleep that students report. Ask for reports about recent research studies on sleep deprivation, patterns of sleep, and other phenomena related to	Current library references.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Sleep (cont.)	this topic.	Text and Library Books
Healthful Appearance	Divide the class into small discussion groups to formulate a list of factors which contribute to a healthy, attractive appearance. Ask the committee to place a C in front of those factors which may be modified or controlled and a H in front of those which are largely hereditary.	Modern Health. p. 15.
Cleanliness and Grooming	Present photographic slides of students who are dressed appropriately for various functions. Include individuals with various body types. Discuss standard codes of dress and grooming for school.	School dress codes *Pamphlets
	Invite a personnel representative from a business firm to discuss appropriate dress and grooming for professional and business occupations.	Modern Health. pp. 32-36.
	Appoint committees to develop check lists on grooming practices about which high school students should be concerned. Arrange for student demonstrations on various aspects of grooming. Identify grooming practices which should be included in the daily regimen. Identify those which should be performed weekly.	
Discriminate Use of Skin and Hair Preparations	Appoint several boys to serve on a panel for the discussion of girls' grooming practices. Ask them to react to such practices as (1) the indiscriminate use of cosmetics, hair styles, and bleaches, and (2) appropriate dress for various occasions.	Modern Health. pp. 26-29. Health and Safety for You. pp. 183-184, 192-193.
	Invite several girls from the senior class who are student body officers to serve on a panel for the discussion of boys' grooming practices.	*List of Approved Free Supplementary Materials: Secondary

III. EVALUATION

Evaluation is an important part of the teaching-learning process. Measurement devices and other techniques of appraisal assist both the teacher and the student to assess progress toward the achievement of the desired purposes of health education. A continual program of evaluation should be conducted throughout the semester to

Provide guidelines in the planning and selecting of appropriate materials and activities to meet the needs and interests of students.

Determine students' strengths and weaknesses in the subject area of health education.

Ascertain the health interests, concerns, and problems of students.

Establish a base line for determining progress at a later date.

Provide evidence of student growth in health knowledge, attitudes, and practices.

Among effective evaluation instruments and procedures which may be used in providing information pertinent to Unit One are the following:

A. Tests and Inventories

1. Standardized Tests and Inventories on Health Knowledge, Health Attitudes, and Health Practices. Analyses of pretest results may be used to determine students' strengths and weaknesses in health. Results also may be used to identify misconceptions held by the students. (A complete listing of such instruments appears in the Mental Measurements Yearbook.)
2. Points of View and Beliefs About Health. Lists of statements which reflect various concepts and points of view regarding health are presented to students. They are requested to identify those statements which would most nearly represent the views of a person who thinks scientifically.
3. Health Interest Inventories. Lists of health topics are compiled and presented to students. They are requested to identify those health topics about which they would like to study.
4. Surveys and Questionnaires on Health Habits. Students are asked to supply information concerning their behavior patterns in relation to personal health.
5. Opinionnaires. Students are asked to state their opinions and views concerning various health problems and issues.
6. Checklists and Questionnaires on Health Problems and Concerns. Students are asked to indicate health problems about which they are concerned.

III. EVALUATION (cont.)

7. Application of Principles. Questions of the "What would you do?" type are asked to test the ability of students to apply knowledge of health principles to everyday situations.
8. Interpretations of Data Concerning a Personal Health Problem. Findings of a health examination on the eye, the ear, posture, or the teeth are presented to students. They are asked to tell what the findings mean and what follow-up procedures should be taken to correct the problem.
9. Sentence Completion Tests. Students are instructed to complete statements such as the following: "Probably, the most important concept to remember in relation to dental health is _____."
10. True-False Statements on Health Knowledge, Attitudes, and Understanding.
11. Multiple-Choice Tests on Health Knowledge, Attitudes, and Practices.
12. Matching Items Tests on Health Knowledge, Attitudes, and Practices.
13. Essay-Type Examinations on Various Aspects of Health.

B. Classwork Performance

1. Participation in Group Work and Class Discussion.
2. Oral and Written Reports.
3. Performance Checks and Rating Scales on Selected Procedures and Practices.

C. Student Self-Appraisal

1. Performance Checks and Rating Scales on Selected Health Practices and Procedures.
2. Self-Appraisal Charts and Records.
3. Student Surveys on Selected Personal Health Practices.

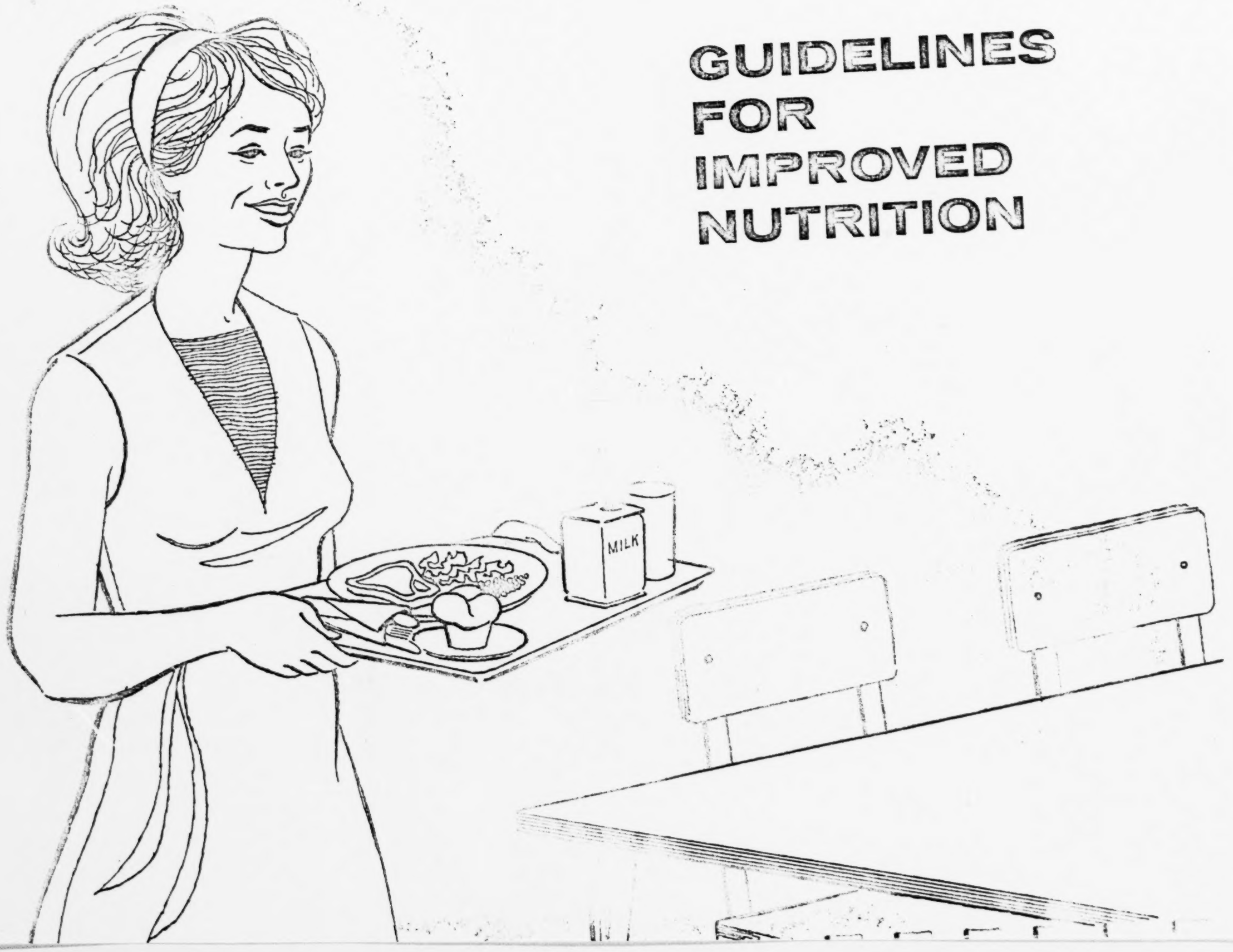
D. Teacher Observation of Health Behavior

1. Recorded Incidents of Student Behavior Both in and out of the Classroom.
2. Interviews and Conferences.
3. Rating Scales and Checklists.
4. Teacher Surveys on Selected Personal Health Practices.

E. Other Pertinent Information

1. Students' Health Records.
2. Dental Appraisal and Follow-up Records.
3. Posture Screening Data.
4. Performance Records on Students' Physical Fitness.
5. Student Autobiographies.

GUIDELINES FOR IMPROVED NUTRITION



UNIT II

GUIDELINES FOR IMPROVED NUTRITION

I. SCOPE OF THE UNIT

Americans enjoy higher nutritional standards and a more adequate food supply than the people of any other country in the world. This achievement has been largely a result of the application of scientific knowledge and the new discoveries in the fields of agriculture, biochemistry, nutrition, and the related sciences. In view of these facts, a person may reasonably ask such questions as

Why do the findings of nutritional studies indicate that the teenager, and especially the teen-age girl, may be deficient in one or more of the basic nutrients?

Why do Americans spend nearly one half billion dollars each year on such dietary fads as nutrient supplements, "health foods," and reducing schemes?

Since these problems are largely the result of faulty dietary patterns, they are essentially educational rather than economic in nature. The informed individual is less likely to submit to faulty dietary practices and to "nutritional quackery." Therefore, this unit is directed toward helping the student to gain the necessary concepts which will enable him to

Comprehend the specific nutritional needs of high school youth.

Understand and to apply basic principles of nutrition in selecting a balanced diet.

Discern the relationships between caloric intake, caloric expenditure, weight control and fitness.

Distinguish between sound dietary practices and nutritional fads or fallacies.

A time allotment of one to two weeks is suggested for the completion of this unit. To keep within this time schedule, teachers should select from the lists of activities suggested those experiences which are most appropriate for individual classes. The outline of course content for Unit Two, lists of suggested activities and reference materials, and an explanation of evaluation procedures appear on the following pages.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

OUTLINE

A. NUTRITIONAL NEEDS

1. General Requirements
   a. Proteins
   b. Minerals
   c. Vitamins
   d. Carbohydrates
   e. Fats
2. Specific Requirements

B. SOUND NUTRITIONAL PRACTICES

1. Basic Dietary Patterns
2. Individual Adaptations
3. Avoidance of Faulty Diets
4. Weight Control
   a. Interpretation of Standards
   b. Scientifically Established Procedures for Weight Control
   c. Undesirable Reducing Practices

C. NUTRITIONAL FACTS AND FALLACIES

1. Nutritional Fads
   a. Food Supplements
   b. "Health Foods"
2. Food Combinations
3. Food Additives
4. Consumer Protection
   a. Labels
   b. Legislation
5. Sources of Accurate Information on Foods and Nutrition

74

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
NUTRITIONAL NEEDS	Use posters, bulletin boards, and other visual aids to introduce the study of nutrition. Contrast the characteristics of individuals who receive proper nourishment with those who do not. Point out that nutrition provides the energy that is needed to perform at peak efficiency. It influences such factors as growth, resistance against disease, and the condition of the skin, hair, and teeth.	Text and Library Books Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 3-39.
General Requirements	Ask for the definitions of the term "nutrition." Point out that it is the science which deals with proper nourishment of the body through (or by) determining the kinds and amounts of food that are necessary to Build and repair body tissues. Provide energy for work and play. Regulate body processes. Any chemical substance, either organic or inorganic, that functions in one or more of the above ways is classified as a nutrient. Assign students to form their own definitions of "food," "nutrition," and "nutrient."	Modern Health. pp. 304-306. Health and Safety for You. pp. 242-243. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. F. Saunders, 1960. p. 120.
	List the basic substances which make up the human body, and cite the percentage distribution of each. For example: Oxygen ---------- 65 Carbon ---------- 18 Hydrogen ---------- 10 Nitrogen ---------- 3 Calcium ---------- 2 Phosphorus ---------- 1	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
General Requirements (cont.)	Other (potassium, sodium, sulphur, iron, magnesium, cobalt, iodine, chlorine, manganese, copper, zinc, fluorine, etc.) ---------- 1/100 per cent Use the above information to point out the substances which make up most of an individual's body weight. Review the major classes of nutrients, and summarize the basic function of each as in the following chart: FUNCTIONS OF NUTRIENTS IN FOODS NUTRIENTS / FURNISH ENERGY / BUILD AND REPAIR TISSUES / REGULATE BODY PROCESSES Carbohydrates: X Fats: X Proteins: X / X / X Mineral Salts: X / X Vitamins: X Use atomic models or flannel board displays to show the chemical nature of each of the above substances. Point out that water is considered to be a sixth basic requirement because it also regulates body processes. Include demonstrations to illustrate the presence of basic nutrients in various foodstuffs.	Text and Library Books Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 60-65. Modern Health, pp. 305-307. Health and Safety for You. pp. 241-248. Munzer, Martha E., and Paul F. Brandwein. Teaching Science Through Conservation. New York: McGraw-Hill, 1960. pp. 168-169.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
General Requirements (cont.)	Clarify terms of measurement that are frequently used in the study of nutrition. For example: 1 kilogram = 2.2 pounds 1 gram = 1/454 pounds 1 milligram = 1/1000, 0.001, or 1 x 10^{-3} grams 1 microgram = 1/1,000,000, .000001, or 1 x 10^{-6} grams The "International Unit" is based on a definite weight of a pure substance, such as 1 International Unit of vitamin C = 0.05 milligram of pure ascorbic acid 1 International Unit of vitamin A = 0.0006 milligram of B carotene 1 International Unit of vitamin D = 0.000025 milligram of calciferol Define the term calorie as the quantity of heat which is needed to raise the temperature of 1 gram of water 1 degree centigrade. The kilocalorie (1000 calories) is the "calorie" unit that nutritionists use to measure the fuel value of food. Illustrate the definition of the food calorie by placing a centigrade thermometer in a quart of water, which is approximately 1 kilogram, and heating it. To raise the temperature of the water 1 degree centigrade will require the expenditure of 1 "calorie" (kcal.).	Text and Library Books Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1962. pp. 40, 193.
Proteins	Ask students to cite several reasons why proteins are essential for building and maintaining body tissues and for regulating body processes. Point out that proteins --Form a basic part of the nucleus and cytoplasm of every cell. --Perform a vital role in the formation of enzymes, hormones, antibodies, and hemoglobin.	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 60-61.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Proteins (cont.)	--Are the chief source of the body's nitrogen. --Make up the outer layers (keratin) of the skin, hair, and nails. --Serve as an energy food, yielding 4 calories per gram. Distinguish between complete (animal) and incomplete (plant) proteins. Differentiate between essential and non-essential amino acids. More than half of the 23 or more amino acids that are the constituents of cells and tissues can be synthesized by the body. The remaining amino acids are termed "essential" because they must be supplied by food. Assign students to develop a list of typical foods that are high in protein. Cite some of the factors which influence protein requirements for various individuals. Size and age are important considerations; however, the amount of muscular energy expended is not. For example, the average adult requires about 1 gram (1/454 pounds) of protein for each 2.2 pounds of body weight. The baby of 1 year needs about 3.5 grams of protein per 2.2 pounds of body weight, the 6-year-old about 2.5 grams, and the adolescent boy or girl about 1.5. Ask students to compute their protein requirements on the basis of body weight and to compare the results with the Food and Nutrition Council's recommended dietary allowances.	Text and Library Books Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 92-105. Modern Health. p. 308. Health and Safety for You. p. 244.
Minerals	List the ways in which the body uses minerals. Ask students to construct a mineral chart with the following headings: Mineral — Importance — Food Source	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 64-65. Modern Health. pp. 308-309.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Minerals (cont.)	Point out that a lack of adequate amounts of calcium and phosphorus in the diet may result in stunted growth, weakened or soft bones, rickets, and malformed or decayed teeth. Insufficient iron or copper (or both) may lead to nutritional anemia, a condition resulting from a deficiency of hemoglobin, the oxygen-carrying substance in the blood. Ask students to list several public health measures which have been employed successfully to prevent iodine insufficiency, which can lead to simple goiter (iodized salt, iodine added to the water supply). The recommended allowance by the National Research Council is approximately 2-4 micrograms (1/1,000,000) of iodine per day for each 2.2 pounds of body weight. Today, this amount is easily accessible in the food and water supply in most regions. Request students to identify typical foods that are high in iron, calcium, and phosphorus from a table in which the nutritive values of foods in average servings appear.	Text and Library Books Health and Safety for You. p. 245. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 120-184. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. p. 568.
Vitamins	Discuss the meaning of the term "vitamin." Point out that "vita" is a Latin word which means necessary for life. List some ways in which vitamins function to promote growth and to regulate normal body processes. Point out that vitamins act as enzymes, or catalysts, to promote chemical reactions which are essential for health. Analyze the methods that were employed by scientists who concluded that certain dietary substances could prevent or cure specific diseases. Develop appreciation for the scientific method in evaluating the work of men who have contributed to the knowledge of vitamins. Assign student reports concerning:	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 63-64. Editorial Staff. "Nutritional Data." Pittsburg: H. J. Heinz, 1958. pp. 2-3.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Vitamins (cont.)	Christian Eijkman, Fredrick Hopkins, Casimir Funk, Gerrit Grijns, Axel Host, Theodor Froehlich, Elmer McCollum, Joseph Goldberger, Conrad Elvejhem, Herbert Evans, Paul Gyorgy, R. J. Williams, George Burr, Henrik Dam, Albert Szent Gyorge, Charles Kent, Glen Waugh, Sam Lepkovsky Compare some of the properties of the water soluble (B- complex, C) and fat soluble (A,D,K,E) vitamins. Request the class to list some of the ways in which the nutritive value of vitamins can be safeguarded in foods. Ask students to bring to class labels which represent examples of foods that have been enriched or fortified with specific vitamins. What nutrients are added to flour? Prepare a vitamin chart with the following headings: Vitamin — Importance — Food Source Direct students to consult the National Research Council's recommended dietary allowances for the various vitamins. Ask them to compare vitamin allowances for various age groups. Evaluate with students the use and need of vitamins as a dietary supplement. Emphasize that adequate vitamin intake can be assured through the use of proper amounts of whole milk, whole grains, fruits and vegetables, butter, eggs, and meat.	Text and Library Books Modern Health. pp. 309-314. Health and Safety for You. pp. 245-249. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 184-298. Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 63-64.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Carbohydrates	**List the ways in which the body uses carbohydrates. Discuss the various groups of carbohydrates. Ask the class to identify typical foods that have a high carbohydrate content. In the United States, less than half of the energy intake comes from carbohydrates as compared with 80 per cent in Japan.**	Text and Library Books Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 20-26. Modern Health. p. 306. Health and Safety for You. pp. 243-244.
Fats	**Evaluate the inclusion of fats in the diet. Point out that they** **1. Provide the most concentrated source of food energy, yielding approximately 9 calories per gram as compared with 4 per gram for proteins and carbohydrates.** **2. Serve as carriers of the fat-soluble vitamins.** **3. Serve as main sources of the fatty acids (linoleic and arachidonic acids), which are essential in the prevention of certain abnormalities of the skin.** **Ask students to list several reasons why nutritionists suggest that not more than 25 to 35 per cent of the fuel value of the diet should come from fats. Indicate that a diet which is high in fat should be evaluated because this type of diet** **1. Supplies little of the essential nutrients, such as proteins, minerals, and the water-soluble vitamins.** **2. Contributes to overweight.**	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 63-64. Modern Health, p. 307-308. Health and Safety for You. p. 244. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 318-319.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Fats (cont.)	3. May contribute, along with other factors, to a tendency toward accumulation of excess amounts of cholesterol in the blood and to the development of atherosclerosis. Cholesterol is a lipid that exists in foods containing fats and oils. This substance is also manufactured by the human body and functions as a "provitamin" in the synthesis of vitamin D. Differentiate between saturated and unsaturated fats. Saturated fats are usually solid at room temperature, and unsaturated fats are usually in a liquid state. Point out that fats are classified as saturated or unsaturated on the basis of their ability, chemically, to take up additional atoms of hydrogen. If the molecular structure of a fatty acid is complete for hydrogen and cannot be altered, it is said to be saturated. The molecule of an unsaturated fatty acid can take up additional hydrogen atoms and thus may become saturated. This process, called hydrogenation, is used commercially to manufacture solid cooking fats from liquid vegetable oils. Invite the school physician to discuss the significance of saturated and unsaturated fats in controlling cholesterol levels. Discuss the extent to which this problem may affect the high school student. Instruct students to consult food charts to learn the cholesterol content of typical foods. Studies show that fats represent about 40 per cent of the total caloric intake of the average American. Approximately 80 per cent of the fat in the average diet comes from dairy products, meat, and fats and oils. It is estimated that approximately two-thirds of the total fat is of animal origin (these are usually	Text and Library Books Council on Foods and Nutrition, "The Regulation of Dietary Fat," Journal of the American Medical Association, 181 (August 7, 1962), pp. 411-429.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Fats (cont.)	saturated) and about one-third is of vegetable origin (these are usually unsaturated).	Text and Library Books
Specific Requirements	Analyze the specific nutritional needs of high school boys and girls. Ask students to suggest several reasons why the nutritional needs of the teenager are greater than those of the adult. Indicate that the teenager needs 1. More energy foods because he is more active and has a higher metabolic rate than the adult. 2. Greater amounts of tissue-building substances than the adult because he is still growing.	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia. W. B. Saunders, 1960. pp. 493.
	Chart on the chalkboard and analyze with students the recommended dietary allowances for the average high school boy and girl. Point out that these allowances are only a reference point and provide a margin of safety which is about 50 per cent above the minimum intake that is needed to maintain metabolic balance for the average individual.	National Academy of Sciences, National Research Council. Recommended Dietary Allowances, 1964. Washington, D. C.: National Academy of Sciences, 1964. p. vi.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES

Specific Requirements (cont.)

RECOMMENDED DIETARY ALLOWANCES - NATIONAL RESEARCH COUNCIL

		Calories	Proteins	Calcium	Iron	Vit. A	Thiamine	Riboflavin	Niacin (Nicotinic Acid)	Ascorbic acid	Vit. D
			Grams	Grams	Mg.	I.U.	Mg.	Mg.	Mg.	Mg.	I.U.
Boys	12-15	3000	75	1.4	15	5000	1.2	1.8	20	80	400
	15-18	3400	85	1.4	15	5000	1.4	2.0	22	80	400
Men	18-35	2900	70	0.8	10	5000	1.2	1.7	19	70	---
Girls	12-15	2500	62	1.3	15	5000	1.0	1.5	17	80	400
	15-18	2300	58	1.3	15	5000	0.9	1.3	15	70	400
Women	18-35	2100	58	0.8	15	5000	0.8	1.3	14	70	---

Contrast recommended caloric needs for girls and boys of different ages. Discuss reasons for differences.

Instruct each student to compare his dietary intake of the previous day with the above requirements. Request him to compute the per cent of the total calories contributed by fats, carbohydrates, and proteins.

Request students to develop a list of factors for judging the adequacy of a daily diet. Point out that an adequate diet is one which achieves a proper distribution of energy and other essential nutrients in balance with individual body requirements.

Text and Library Books

Modern Health. pp. 314-315.

Health and Safety for You. pp. 252-255.

Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 57-71.

Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1960. pp. 58-74.

SOUND NUTRITIONAL PRACTICES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
SOUND NUTRITIONAL PRACTICES (cont.) Basic Dietary Patterns	Essential Nutrients — Calories for Energy BODY REQUIREMENTS Ask the class to evaluate several dietary patterns which have been suggested for supplying daily nutritional needs. Instruct students to analyze the extent to which the following plans provide for the inclusion of the basic nutrients which are essential for body growth and regulation. 1. Allocation of calories among food nutrients so that Intake levels for protein make up 12-15 per cent of the total daily calories. Allowances do not exceed 8-12 per cent for refined sugars and starches and 20-25 per cent for fats. 2. Apportionment of food budget so as to include proper amounts of the essential nutrients. 3. Selection of food choices from recommended dietary patterns or food groupings, such as the Basic Four Food Groups, the Basic Seven, and others. 4. Selection of definite amounts of certain foods daily as part of a basic foundation diet. For example: Milk--2-4 glasses daily for high school student Meats--1 serving (3½ ounces or 100 grams) Eggs--At least 3 or 4 per week (1 additional serving of a protein food, such as extra milk, egg, cheese, legumes, nuts) Vegetables--1 average serving of leafy, green, or yellow vegetable 1 average serving of an additional vegetable Fruits--1 average serving of citrus fruit, tomatoes, or other rich source of vitamin C	Text and Library Books Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 324-331. Modern Health. p. 316. Health and Safety for You. pp. 249-251.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Basic Dietary Patterns (cont.)	1 average serving of an additional fruit (fresh, canned, or dried) Butter or fortified margarine--at least 2 tablespoons Bread and/or cereal--2-4 slices whole grain or enriched and 1 serving whole grain cereal Assign student committees to prepare daily menus which include the kinds and amounts of foods which meet the requirements of the Basic Four Food Groups. Ask a committee to evaluate the cafeteria menu in terms of these requirements. Discuss basic meal patterns. Evaluate basic dietary patterns of people in other countries. To what extent do these diets meet nutritive standards? Formulate guidelines for purchasing foods according to budgetary allowances. Set up two shopping carts of foods, and instruct the class to compare the food values of items of relatively equal cost. Develop on the chalkboard a list of factors which may affect individual differences in basic dietary allowances. Such a list should include age, sex, size, body type, growth rate, energy requirements, and climatic conditions. As stated previously, recommended dietary allowances provide only a reference point to assist the individual in adapting his diet to meet his particular needs. Discuss the factors which govern the number of calories that are needed to meet the energy requirements of an individual. Energy, the power to do work, is required by the body to 1. Carry on the metabolic processes. Basal metabolism represents the minimum amount of energy that is required to maintain the internal life processes of the body at rest. It is the amount	Text and Library Books Modern Health. pp. 320-321. Health and Safety for You. pp. 256-259. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 40-71. Mayer, Jean. "Exercise and Weight Control," Exercise and Fitness. Chicago: Athletic Institute, 1960. p. 110. Modern Health. pp. 315-316.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Individual Adaptations (cont.)	of energy which is required just to keep alive. Basal metabolism consumes about 1 calorie per hour for each kilogram (2.2 pounds) of body weight, or about 11 calories per pound per day. A person weighing 120 pounds, or 55 kilograms, would require 1320 calories just to maintain vital life processes each day (1 x 55 x 24 = 1320). 2. Perform necessary muscular activity. Following are examples of energy costs for different degrees of physical activity per hour for each pound of body weight. Sleeping 0.43 Sitting at rest 0.65 Sitting at work (writing, typing) 0.70 Light exercise (housework) 1.10 Walking 1.30 Running (trot) 1.95 Running (fast) 3.70 Very severe exercise (heavy competitive sports) 4.00 Request students to estimate their own daily energy requirements. First, instruct them to keep a detailed record of the time spent at different types of activities throughout a typical day and to compute the energy used in each activity by means of figures such as those listed in the previous paragraph. For example: Activity / Calories per lb. / No. of hrs. / Body Wt. / Totals Light exercise / 1.10 / 2 / 120 lbs. / 268	Text and Library Books Health and Safety for You. pp. 252-253. Modern Health. p. 315. Health and Safety for You. p. 252. Mayer, Jean. "Exercise and Weight Control," Exercise and Fitness. Chicago: Athletic Institute, 1960. pp. 110-122.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Individual Adaptations (cont.)	Then ask students to compute the number of calories that are needed for basal metabolism and to add this sum to the total number of calories required for muscular activity. Compare the total number of calories needed with the number consumed. Total Number of Calories Needed for One Day For muscular activity _____ calories For basal metabolism _____ calories _____ Total calories needed _____ Total calories consumed _____ Difference	Text and Library Books
Avoidance of Faulty Diets	Ask the class to identify some of the faulty dietary habits of teenagers. Obtain students' opinions as to why teenagers often 1. Skip meals, especially breakfast. 2. Select basic meals that are high in fats and carbohydrates to the exclusion of the essential nutrients. 3. Consume considerable amounts of refined sugars and starches between meals. 4. Omit vegetables and fruits, a practice which leads to suboptimal supplies of vitamin A and insufficient intake of vitamin C. 5. Fail to include sufficient protein in the diet. 6. Fail to include a variety of foods in the diet. 7. Substitute cola drinks and coffee for milk. 8. Fail to drink enough water and wholesome fluids. Report that poor nutritional practices may be a factor in such conditions as chronic fatigue, anemia, increased tooth decay, poor posture, pallor, skin trouble, spongy bleeding	Byrd, Oliver E. Nutrition Sourcebook. Stanford: Stanford University Press, 1955. pp. 284-301. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 339-350. Modern Health. pp. 319-320. Health and Safety for You. pp. 260-261.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Avoidance of Faulty Diets (cont.)	gums, hypersensitivity to light, crusty eyelids, obesity, underweight, and lack of resistance to infections. Discuss deficiency diseases resulting from poor dietary patterns that are prevalent in other parts of the world. Appoint a survey team to observe the faulty nutritional practices of students during the nutrition and lunch periods. Instruct the committee to organize the findings into a report for publication in the school newspaper. Discuss the meaning of "dietary crutches." Define a dietary crutch as a practice that provides a convenient, but inadequate, substitute for the essential nutrients that are required for a balanced diet. For example 1. Coffee before breakfast 2. Sweet roll at nutrition as a substitute for breakfast 3. Dietary pills "that take the edge off your appetite" 4. High consumption of foods during emotional stress 5. Food snacks while viewing television Appoint a panel to discuss the influence of teenage social patterns on the dietary habits of high school students. Plan with the homemaking teacher to arrange a demonstration on nutritious snacks that are suitable for teen-age parties.	Text and Library Books Modern Health. pp. 310-314. Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 444-445. Health and Safety for You. pp. 260-261.
Weight Control	Discuss the concept of weight control. Point out that the body weight remains relatively stable when the caloric value of food intake is just about equal to caloric expenditure.	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 76-77.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Interpretation of Standards	Ask students to list some of the factors which should be considered in determining how much a person should weigh. Usually, the weight at which the individual looks, feels and performs his best should be his optimum weight. Evaluate the use of standard height and weight charts as an index for determining ideal body weight. How do charts which give the ideal weight for persons of a particular height, age, and body type differ from charts for average weights? Arrange with the school nurse for each student to be weighed and measured. Instruct students to compare these measurements with figures on a physical growth record chart (Meredith or Wetzel), or on a similar chart which gives the desirable weights for various body types as well as for heights and ages (Metropolitan Life Insurance Company). Plan for students who have personal questions concerning weight problems to consult with the school physician or nurse.	Text and Library Books Bogert, Jean L. Nutrition and Fitness. 3rd ed. Philadelphia: W. B. Saunders, 1960. pp. 85, 324. Wilgoose, Carl E. Evaluation on Health and Physical Education. New York: McGraw-Hill, 1961. pp. 61-74. Modern Health. pp. 315-318. Health and Safety for You. pp. 253-255.
Scientifically Established Procedures for Weight Control	Discuss the extent to which weight control is a problem among young people. Report that by the age of 20 1 in every 4 women and 1 in every 5 men is at least 10 per cent overweight (10 per cent above the ideal weight).[1] Discuss the extent to which being underweight may constitute a problem for medical attention. When a person is 20 to 30 per cent below his normal weight, he is likely to be in a state of severe malnutrition.	Modern Health. pp. 318-319.

[1] Oliver E. Byrd, Health (3rd ed. Philadelphia: W. B. Saunders Company, 1962), p. 76.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Scientifically Established Procedures for Weight Control (cont.)	Discuss causes of overweight. To what extent may being overweight constitute a problem? When a person exceeds 10 to 20 per cent of his normal weight, he is definitely overweight. Point out that problems of obesity should be referred to a competent physician. Persons should not submit themselves to special diets without the direction of a physician. Eating the same foods that one ordinarily eats, only in less quantities, is recommended as a sound procedure for weight reduction. Reducing diets should contain the same essential nutrients as normal diets.	Text and Library Books Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. p. 77.
	Invite the school physician to discuss the health hazards of being overweight and to suggest scientifically established procedures for weight control. Emphasize that excessive weight has long been considered a threat to health. Obesity shortens life expectancy. It increases the probability of the following conditions: high blood pressure, deposits of lipoidal substances around the heart and in the arteries, arthritis, foot problems, psychological problems, and diabetes. Obese persons present a greater surgical risk and are more accident prone than persons of average weight. Discuss the value of exercise in weight-reducing programs.	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 77-82.
Undesirable Reducing Practices	Cite the dangers of "crash" diets. Ask students to collect examples of crash diets that have been published in newspapers and magazines. Evaluate the following as a means of reducing weight 1. Drugs and diet pills (hormones, laxatives, stimulants and the like which have not been prescribed by a physician) 2. Special diets and dietary formulas that have not been prescribed 3. Mechanical devices	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 82-83. Modern Health. pp. 319-320.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Undesirable Reducing Practices (cont.)	4. Cigarettes and coffee as substitutes for foods 5. Before-meal candies that depress the appetite	Text and Library Books
NUTRITIONAL FACTS AND FALLACIES	Introduce the subject of food facts and fallacies by means of a pretest. For example: T F 1. Depleted soils are robbing us of our food supply. T F 2. Vitamin pills should be taken daily in order to provide "nutritional insurance." T F 3. Egg white is a poor food for older persons who may be susceptible to kidney disorders. T F 4. Foods should be eaten raw, or "rare." T F 5. Bran should be included in the diet as a person grows older. T F 6. A large part of our food supply is over-processed. This may lead to subclinical deficiencies in necessary vitamins and minerals.	Health and Safety for You. p. 261.
Nutritional Fads	Discuss the extent to which food fads are a public health problem. Report that Americans spend an estimated half-billion dollars each year on various kinds of food fads and nutritional "quackery." Ask students to define and to give examples of the terms "fad" and "fallacy." Discuss some of the ways in which a person may differentiate between fact and fallacy. Request class members to develop lists of erroneous beliefs and fads concerning foods and nutrition. Instruct them to refute each belief and fad through the application of scientific principles.	Editors of Consumer Reports. The Medicine Show. Mount Vernon, N.Y.: Consumers Union, 1963. pp. 75-80. Modern Health. pp. 319-320.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Nutritional Fads (cont.)	Ask students to bring to class examples which illustrate some of the ways in which accepted nutritional practices have been distorted to promote the sale of a food product or dietary supplement. Analyze some of the techniques and "gimmicks" that are used to promote false and misleading information. For example: 1. The lecturer on "health foods" 2. The book approach (Calories Don't Count, Folk Medicine) 3. Television and radio commercials 4. Advertisements in newspapers and magazines 5. Door-to-door sales campaigns 6. "Health food" centers	Text and Library Books Modern Health. pp. 319-320.
	Point out the fallacies of using drugs, steam baths, massage, and fad diets as methods of weight control.	
Food Supplements	Assign students to evaluate and report on the practice of supplementing the diet with vitamin pills. Cite the effects of excessive amounts of specific vitamins.	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 444-447.
"Health Foods"	Ask the class to analyze the fallacies of so-called "health foods." How can scientific principles be applied in judging the worth of such products?	Editor of Consumer Reports. The Medicine Show. Mount Vernon, N. Y.: Consumers Union, 1963. pp. 81-94.
	Assign students to evaluate the so-called superiority of "organically grown foods." Instruct them to check the claims of the vendors of such foods against scientific evidence contributed by reputable scientists.	
Food Combinations	Evaluate class attitudes toward various food combinations. Point out the fallacies concerning such combinations as	Bogert, Jean L. Nutrition and Fitness. 7th ed. Philadelphia: W. B. Saunders, 1960. pp. 450-459.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Food Combinations (cont.)	Lobster and ice cream Milk and cherries Meat and milk Acid fruit and starches Protein-rich foods and starches Fruits with vegetables Discuss how these beliefs might have developed.	Text and Library Books
Food Additives	Ask for a definition of the term "food additive." Write on the chalkboard and discuss the following definition by the Food and Nutrition Board of the National Research Council:[1] A food additive is a substance or mixture of substances other than a basic foodstuff, which is present in a food as a result of any aspect of production, processing, storage, or packaging. This term does not include chance food contaminants. Point out that food additives are divided into these two major types: 1. Intentional additives are those substances which are added to food products for a specific purpose, such as to	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 75-77. Manufacturing Chemists' Association. Food Additives: What They Are/How They Are Used. Washington, D. C.: Manufacturing Chemists' Association, 1961. pp. 15-31.

[1]Manufacturing Chemists' Association, Food Additives: What They Are/How They Are Used (Washington, D. C.: Manufacturing Chemists' Association, 1961). p. 15.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Food Additives (cont.)	Enrich the nutritive value--Iodized salt; fortification of milk with vitamin D; addition of thiamine, riboflavin, niacin, and iron to enrich flour and bread; addition of vitamin A to margarine. Retard spoilage and prevent undesirable changes in color or flavor caused by oxidation--Addition of ascorbic acid to prevent the browning of fruits and the rancid taste and odor of fats and oils; the use of sugar, salt, and certain antibiotics as preservatives against the growth of bacteria, yeast, or mold. Preserve and enrich the flavor, texture, and color of foods--Addition of natural spices artificial flavoring agents, emulsifiers, thickening or whipping agents, and foam inhibitors. 2. Incidental additives are those substances which have become a part of the food product as the result of production, processing, storage, or packaging. These may be traces of agricultural chemicals which may be present in foods, or chemicals which have been introduced from packaging materials that may filter into food products. Ask students to report how the safety of both types of food additives is carefully established and regulated by the Food and Drug Administration. Discuss the major amendments of the 1938 Food and Drug Law which pertain to food additives. For example: The Miller Pesticide Amendment of 1954 deals with the	Text and Library Books Manufacturing Chemists' Association. Food Additives: What They Are/How They Are Used. Washington, D. C.: Manufacturing Chemists' Association, 1961. pp. 15-31. Manufacturing Chemists' Association. Food Additives: What They Are/How They Are Used. Washington, D. C.: Manufacturing Chemists' Association, 1961. pp. 33-42.

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Food Additives (cont.)	establishment of safe limits of pesticide residues on products which are shipped between states. The Food Additives Amendment of 1958 requires the safety of potential food additives to be proved through extensive testing programs. The Color Additive Amendments of 1960 require evidence of the safety of using proposed coloring substances under normal circumstances. Assign students to bring to class lists of the foods in their cupboards and refrigerators at home that contain food additives, and discuss the purposes of each.	Text and Library Books
Consumer Protection	Invite representatives from the health department and from the Los Angeles Office of the Federal Food and Drug Administration to discuss the scope of their activities in assuring the safety and quality of the food supply.	Editors of Consumer Reports. The Medicine Show. Mount Vernon, N. Y.: Consumers Union, 1963. pp. 75-105.
Labels	Assign each student to analyze the information contained on various food labels, including those which appear on a dairy product, a canned food, a dehydrated food, and a frozen food. Discuss the extent to which the labeling of food products protects the consumer, such as those persons requiring a sugar or salt free diet. What additional information would be helpful to the consumer? List on the chalkboard several criteria that are used in judging the quality of a food (tenderness, uniformity, extent of defects, thickness of peel).	

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Legislation	Request students to construct a time line tracing the history of the Federal Food and Drug Act from its original enactment in 1906 to the present. Ask them to show how the various revisions and amendments have broadened the functions of the Food and Drug Administration to cope with new hazards and forces which may adulterate the food supply. Discuss city and county laws and ordinances that deal with the quality of dairy products, meat, and other food products. Ask the class to identify types of legislation which should be enacted in the future to protect the consumer.	Text and Library Books Federal Food, Drug, and Cosmetic Act and General Regulations for Its Enforcement. U. S. Government Printing Office, Washington 25, D. C.
Sources of Accurate Information on Foods and Nutrition	Appoint committees to formulate lists of sources of reliable information on foods and nutrition. Devise problem situations which involve the verification of facts on food and nutrition. Ask students to explain the procedures which they would follow in order to verify the accuracy of each fact. Discuss the responsibility of the individual in seeking out scientific truths and in eliminating nutritional quackery.	

UNIT II

GUIDELINES FOR IMPROVED NUTRITION

III. EVALUATION

Student progress toward the purposes of this unit may be determined in a variety of ways. Following is a list of suggested techniques and procedures:

A. Tests and Inventories

1. Application of Principles of Nutrition. Students are asked to determine the adequacy of menus in terms of basic dietary patterns, such as the Basic Four Food Groups.
2. Analyses of Misconceptions and Misleading Information on Nutrition. Students are asked to identify and to refute erroneous beliefs and misinformation concerning foods and nutrition.
3. Interpretion of Charts and Tables on Nutritional Data and Weight Control. Students are presented problems which involve the interpretation of data from tables and charts, such as tables of recommended dietary allowances and charts of height and weight averages.
4. Identification of Reliable Sources of Information. Students are requested to identify reliable sources for obtaining information on various situations involving nutritional fads, fallacies, and quackery.
5. Surveys and Questionnaires on Dietary Practices. Students are requested to supply information about dietary practices, problems, and concerns relating to nutrition.
6. Opinionnaires. Students are asked to state their opinions and views concerning various issues and problems which relate to nutrition.
7. True-False Statements on Principles of Diet and Nutrition.
8. Multiple-Choice Tests on Knowledge, Attitudes, and Practices.
9. Matching-Items Tests on Knowledge, Attitudes, and Practices.
10. Essay-Type Examinations on Knowledge, Attitudes, and Practices.

B. Performance of Classwork

1. Oral and Written Reports.
2. Participation in Class Discussion.
3. Performance Checks. Students are presented with problem situations to determine their ability to make wise decisions concerning the use of foods and the application of the principles of nutrition.

III. EVALUATION (cont.)

C. Student Self-Appraisal

1. Checklists and Rating Scales on Individual Dietary Practices.
2. Self-Appraisal Charts and Records on Weight Control. Students are asked to keep records of caloric intake and caloric expenditure.
3. Student Surveys of Teen-Age Dietary Practice. Students are asked to keep a record of sound and unsound dietary practices observed by survey teams during nutrition and lunch periods.

D. Teacher Observation of Health Behavior

1. Recorded Descriptions of Students' Dietary Practices During Nutrition and Lunch Periods.
2. Interviews and Conferences with Students.
3. Rating Scales, Checklists, and Health Records Concerning Students' Nutritional Status.
4. Charts Noting Student Progress.

TRANSITIONS TO MATURITY

100

UNIT III

TRANSITIONS TO MATURITY

The topics included in this unit should be reviewed with the school principal for guidance and direction concerning scope of coverage

I. SCOPE OF THE UNIT

In his attempt to assume the responsibilities that are characteristic of maturity and adulthood, the adolescent is challenged during the normal period of transition by problems which are an outgrowth of a society that is becoming increasingly complex. Although the adolescent desire for independence is as strong today as in past generations, of necessity the period of dependency is becoming progressively longer. A greater number of years and, subsequently, a longer postponement of personal goals are required for young people to gain the basic knowledge and skills that are needed for adjusting effectively to the many roles demanded in a highly technical urban society.

This unit is directed toward helping adolescent students to

Understand and accept the physiological aspects of growth and maturation.

Gain an understanding of the multitude of forces, both physiological and social-emotional, that influence thoughts and actions.

Identify the changing role of the adolescent in personal-social development.

Develop a philosophy of living that leads to personally satisfying and socially responsible behavior.

It is suggested that a maximum of three weeks be allowed for the completion of this unit. Teachers are requested to review the topics in this unit with the school principal to determine the scope of coverage (as suggested above).

The outline of course content, lists of suggested activities and reference materials, and an explanation of evaluation procedures appear on the following pages.

101

UNIT III

TRANSITIONS TO MATURITY

OUTLINE

A. EVIDENCES OF MATURITY

1. Physical Growth
   a. Body Proportion and Muscular Development
      (1) Sex Differences
      (2) Individual Variations
   b. Physiological Maturation
      (1) Role of the Endocrine Glands
      (2) Development of the Reproductive System
2. Personal-Social Development
   a. Growth of Self-Confidence
   b. Acquisition of Socially Approved Behavior
      (1) Physiological Basis of Behavior
      (2) Emotional Basis of Behavior
      (3) Social Basis of Behavior
         (a) Acquired Behavior
         (b) Group Expectancies
            1) Family
            2) School
            3) Peer
            4) Community
      (4) Individual Role
         (a) Identification of Individual Role
         (b) Understanding Role of Others
         (c) Conformity and Individuality
         (d) Approaches to Solution of Problems

B. RESPONSIBILITIES

1. Family Health
   a. Appreciation of the Family
   b. Mutual Respect of Family Members
   c. Factors Which Contribute to Family Health
      (1) Heredity
      (2) Health Protection and Care
         (a) Prenatal
         (b) Birth
         (c) Infancy and Childhood
         (d) Adolescence
   d. Teenage Role
      (1) Transitions from Parental Dependence to Independence
      (2) Early Marriages
2. Community Citizenship
   a. Development of a Philosophy of Life
   b. Socially Responsible Behavior

UNIT III

TRANSITIONS TO MATURITY

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
EVIDENCES OF MATURITY	Ask students, "What proportion of man's life span is required to reach maturity?" This concept may be illustrated graphically on the chalkboard as follows: Birth 12 16 21 70 Childhood | Early Adolescence | Late | Maturity and Adulthood	Text and Library Books Garrison, Karl C. Psychology of Adolescence. New Jersey: Prentice-Hall, 1965. pp. 1-78.
	How does this span compare with that of animals? Discuss some of the reasons for these differences. Clarify the terms "adolescence," "Puberty," and "maturity." Explain that Puberty refers to the onset of the physical changes which characterize maturity. Adolescence is a phase of the growth cycle which starts with puberty and which ends with maturity. Develop a list of factors on the chalkboard which may be considered criteria or evidence of maturity. In what way does legal age define the role of the mature person? To what extent is this a reliable criterion?	Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp.1-16. Health and Safety for You pp. 15-22.
Physical Growth	Point out that the period of late adolescence, ages 17-21, is a transitional period for the completion of physical growth and for the acquisition of behavior patterns which characterize maturity.	Hurlock, Elizabeth B. Adolescent Development New York: McGraw-Hill, 718 pp.

UNIT III

TRANSITIONS TO MATURITY

<table>
<tr><th>CONTENT</th><th>ACTIVITIES AND INFORMATION</th><th>RESOURCES</th></tr>
<tr><td>Physical Growth
(cont.)</td><td>Use charts, models, and photographs to illustrate growth changes in skeletal structure and bone development from the adolescent years to maturity.

The accelerated growth rate that began at puberty continues at a diminishing pace and gradually ceases during late adolescence. Full stature is usually attained at approximately age 20 for boys and about age 18 for girls.

The ossification (hardening) and fusion of skeletal structures which began during infancy continues until approximately the ages cited above. By maturity, the number of bones in the skeleton has been reduced from 350 at puberty to 206.

Permanent teeth with the exception of the third molar are normally developed by the onset of puberty, ages 12-15. The third molar usually erupts during late adolescence.

Use charts to compare height and weight differences of boys and girls during various stages of development. For example:

SUMMARY OF HEIGHT AND WEIGHT DIFFERENCES
<table><tr><th></th><th>Boys</th><th>Girls</th></tr><tr><td>Birth</td><td>About 1/3 inch taller and heavier</td><td>- - -</td></tr><tr><td>Age 5</td><td>About ½ inch taller and heavier</td><td>- - -</td></tr><tr><td>Age 11</td><td>About the same height and weight</td><td>- - -</td></tr><tr><td>Age 13</td><td>- - -</td><td>About 3/4 inch taller and heavier</td></tr><tr><td>Age 15</td><td>Slightly taller and heavier</td><td>- - -</td></tr><tr><td>Age 18</td><td>2½ to 3 inches taller and heavier</td><td>- - -</td></tr></table></td><td>Text and Library Books

Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 71-102.

Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 71-102.

Horrocks, John E. The Psychology of Adolescence. Boston: Houghton Mifflin, 1962. pp. 400-409.</td></tr>
</table>

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Physical Growth (cont.) Body Proportion and Muscular Development Sex Differences	As indicated in the preceding chart, weight differences follow relatively the same pattern as that for height. Use charts, models, and other visual materials to compare variations in body proportions according to age and sex. Point out that body build, or physique, is dependent upon the relative proportions and dimensions of different parts of the body. Following is a summary of some of these variations: Female Change in the proportion of head size to height Lengthening of the nose and jaws Increase in subcutaneous tissue Enlargement of the breasts Broadening of the hips Increase in leg and arm girth Increase in the length of the trunk Male Increase in the proportion of head size to height Lengthening of the nose and jaws Increase in the circumference of the chest Decrease in subcutaneous tissue Broadening of the shoulders Increase in muscular development Increase in leg and arm girth Increase in the size of the reproductive organs Increase in the length of the trunk	Text and Library Books Horrocks, John E. The Psychology of Adolescence. Boston: Houghton Mifflin, 1962. pp. 400-409. Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 71-102.
Individual Variations	Discuss individual body type variations. Identify some of the reasons for these differences. Evaluate various attempts to classify physique or body type. To what extent are such classifications applicable to the individual?	Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 71-102.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Individual Variations (cont.)	Examples of Somatypes Endomorph -- Soft and round body type) Various Mesomorph -- Muscular and bony body type) combinations Ectomorph -- Thin, fragile body type) thereof Arrange displays of silhouettes which represent different body types. Compare differences in skeletal growth and body proportion for individuals who mature early and late.	Text and Library Books
Physiological Maturation	Discuss the physiological aspects of maturation. Invite the school physician or nurse as a resource. Point out some of the following changes: --Heart size and arterial growth increase. --Pulse rate tends to diminish with age. --Blood pressure tends to increase with age. From approximately ages 10-13, the average blood pressure for girls tends to exceed that for boys. However, from puberty onward, boys have a higher average blood pressure than girls. --Total respiratory volume increases. --Basal metabolism tends to decrease. --The stomach increases in size; the walls of the stomach become thicker, and peristaltic action becomes more vigorous. --The larynx increases in size, lowering the voices of both boys and girls about one octave. --The endocrine glands become more active, causing the reproductive organs to attain functional maturity.	Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill. 1965. pp. 71-102. Horrocks, John E. The Psychology of Adolescence. Boston: Houghton Mifflin, 1962. pp. 400-409.
Role of the Endocrine Glands	Use charts to describe briefly the role of endocrine gland secretions in growth and maturation. (See pages 107-109 for teacher resource information.)	Modern Health. pp. 224-237.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Role of the Endocrine Glands (cont.)	Present a graphic summary of the menstrual cycle on the chalkboard. Discuss the menstrual cycle and menstruation. Menstrual Cycle FSH* (Menstruation) 1 - 4 | LH* Estrogen 5 - 12 | PROLACTIN* Progesterone (Ovulation) 13 - 20 | 21 - 28 Day 1 - 4 Menstruation 5 - 12 Activation and growth of the egg-containing follicle; thickening of the uterine lining 13 - 14 Eruption of the egg cell from the ovarian cortex into the Fallopian tube 15 - 20 Passage of the egg cell down the Fallopian tube to the uterus. Formation of the corpus lutem. Secretion of progesterone 21 - 28 Deterioration of the corpus lutem. Decrease of progesterone secretion. Degeneration of the uterine lining * Pituitary hormones	Text and Library Books Health and Safety for You. pp. 356-362. Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 491-492. Facts Aren't Enough. Chicago: American Medical Association, 1960. pp. 17-29. Preparation for Marriage. Chicago: American Medical Association, 1960. pp. 11-19.
Development of the Reproductive System	Use charts to present an overview of the reproductive systems of the male and female. Invite the school physician and nurse to serve as resource persons. (See pages 109-111 for teacher resource information.)	Preparation for Marriage. Chicago: American Medical Association, 1960. pp. 11-18. Facts Aren't Enough. Chicago: American Medical Association, 1960. pp. 20-29.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Personal-Social Development Growth of Self-Confidence	Analyze with the class the characteristics exhibited by a person who possessed a feeling of adequacy, or self-confidence. Contrast these qualities with those exhibited by a person who feels insecure. Ask the class to suggest several reasons why the person who is unsure of himself usually shies away from situations involving interpersonal relations, thus making a poor personal-social adjustment. Discuss the extent to which the identification of personal strengths and shortcomings can contribute to the development of self-confidence, or a sense of adequacy. Ask each student to list the competencies and qualities that he feels are necessary to become successful. Then request him to evaluate his own strengths in relation to this list. Suggest ways to overcome some of the common weaknesses expressed by students. Comment briefly on the different kinds of human abilities that have been identified by psychologists. Request each student to write on a slip of paper the subject, skill, or activity in which he does best. Note the variety of different talents in the group. Ask for biographical sketches of persons who have utilized special talents to make significant achievements despite handicaps or personal shortcomings. Organize class members into committees to discuss the values of school clubs and other extra-curricular activities in helping students to develop a feeling of adequacy, or self-confidence in interpersonal relations.	Text and Library Books Modern Health. pp. 62-68. Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 71-102 Health and Safety for You pp. 42-47. Modern Health. pp. 14-18 .
Acquisition of Socially Approved Behavior	Define human behavior as the involuntary (reflex or respondent) and self-initiated (voluntary or operant) responses of an organism which are directed toward the satisfaction of innate (organic) and acquired (social) needs.	Modern Health. pp. 48-59. Hilgard, Ernest. Introductio to Psychology. New York: Harcourt, Brace, 1967. pp. 118-138.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Physiological Basis of Behavior	Discuss the roles of the nervous and musculoskeletal systems in the control and coordination of behavior. Point out that the brain and nervous system provide for the integration of the body's systems and for the interaction of the organism with his environment. Use charts and models to present a brief overview of the following: Central Nervous System Brain and spinal column Peripheral nerves Autonomic Nervous System Sympathetic division Parasympathetic division	Text and Library Books Modern Health. pp. 194-208. Health and Safety for You. pp. 342-349.
	Ask the class to list several conditions which may impair or destroy nerve tissue, thus affecting the optimum function of the brain and nervous system. Some of the infectious diseases which may impair nerve tissue are poliomyelitis, cerebrospinal meningitis, encephalitis, and syphilis (in its late stages). Some of the chronic conditions which may affect the nervous system are multiple sclerosis, epilepsy, Parkinson's disease, cerebral hemorrhage, and tumorous growths. Accidental injury to the brain may result in paralysis or other physical and mental defects. Ask for a report on cerebral palsy.	Modern Health. pp. 212-222. Health and Safety for You. pp. 349-354.
	List on the chalkboard and discuss the basic physiological needs that motivate behavior. Ask the class to suggest examples which illustrate how these universal needs are expressed differently in various cultures (food preferences, types of housing). These needs may be classified as follows:[1]	Health and Safety for You. p. 50. Murphy, Gardner. Human Potentialities. New York: Basic Books, 1958. 339 pp.

[1]Gardner Murphy, Human Potentialities, (New York: Basic Books, 1958). pp. 60-61.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Physiological Basis of Behavior (cont.)	Organic. These include needs related to hunger, thirst, air, sex, activity, and protection against extreme heat and cold. Sensory. These include needs for the person to orient himself to his environment, to escape confusion, to gain perceptual clarity, and to distinguish color, tone, and rhythm. Avoidance. These are needs to avoid or escape attack, injury, threat, shock, and unbearable disturbances.	Text and Library Books
Emotional Basis of Behavior	Discuss the wide variety of human emotions that range from mild feelings of pleasantness and unpleasantness to intense states of joy and agony. List on the chalkboard the range and intensity of various emotional states. For example: Pleasant: Like - love; Good - delicious; Joy - ecstacy Unpleasant: Anger - rage; Fear - horror; Sadness - grief; Dislike - hate; Disgust - contempt Define human emotions as complex sensations that -- Vary in strength from one situation to another -- Motivate behavior serving both as drives that provoke action and as feelings that accompany motivated action -- Develop as a result of both maturation and learning from limited emotional responses during infancy to socially conditioned patterns at maturity -- May be helpful or harmful in resolving problems and achieving adjustment.	Modern Health. pp. 61-71. Hilgard, Ernest. Introduction to Psychology. New York: Harcourt, Brace, 1967. pp. 163-186. Modern Health. pp. 88-100. Health and Safety for You. pp. 50-60.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Emotional Basis of Behavior (cont.)	Explore the reasons for bodily changes such as the following, which usually accompany varying emotional states: --Increase in pulse rate and blood pressure --Constriction of blood vessels --Increase in breathing rate --Decrease in salivary secretion (dryness of mouth) --Increase in muscle tension and tremor --Increase in secretion of epinephrine or adrenalin into the blood --Increase in the blood-sugar level --Increase in perspiration rate --Dilation of the pupils of the eyes --Decrease in activity of the digestive system --Increase in frequency of urination --Increase in hair-follicle stimulation (gooseflesh)	Text and Library Books
	Point out that the above physiological reactions are patterned and regulated through the sympathetic division of the autonomic nervous system and of the endocrine secretions (mostly epinephrine or adrenalin). The central nervous system, which controls skeletal muscles, is also active in emotional responses. As the emotional state of an individual subsides, the parasympathetic division takes control until the body mechanisms return to their normal equilibrium.	Modern Health. pp. 204-205.
	Discuss the effects of persistent emotional tensions on physical and mental well being. (Cardiovascular, gastrointestinal, and skin conditions are examples). What is the meaning of psychosomatic? (Organic illness, the causes of which probably result from emotional tensions). Request each student to analyze his emotional reactions in various stress situations, such as when taking a test, presenting an oral report, or participating in some other important event.	

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Emotional Basis of Behavior (cont.)	Present examples which illustrate how emotional states may contribute to survival and may otherwise be beneficial. Why is some degree of anxiety necessary for survival? Ask students to list characteristic responses to various emotional states. Arrange for a committee to present to the class for identification photographs or pantomimes which depict responses to various emotional states. Present examples which illustrate the degree to which emotional expression or suppression is conditioned by membership in a cultural group. How do the variety and intensity of emotional expressions as well as the occasions for their expression differ from culture to culture? Point out that the lie detector is based on the physiological aspects of emotional reaction which are governed by the autonomic nervous system and cannot be controlled voluntarily.	Text and Library Books Modern Health. pp. 61-70. Health and Safety for You. pp. 63-72.
Social Basis of Behavior Acquired Behavior	Point out that social drives or motives differ from physiological drives in that they are acquired or learned as a result of cultural membership and interaction with the social environment. They are learned through reward-punishment systems in which socially desirable behavior patterns are approved or rewarded and socially undesirable patterns are disapproved or punished. Through this process the individual develops values which serve as guides to social action that is acceptable or "good" behavior in a particular social setting and to action which is unacceptable. Discuss the extent to which social behavior is rooted in physiological drives. An individual's system of values reflects his degree of maturation and his attitudes, interests, standards, and ideals. Ask the class to present examples which illustrate some of the ways by which children learn socially approved behavior patterns in their everyday life (association, trial and error, imitation). How have some of these principles been applied	Modern Health. pp. 48-58 . Hilgard Ernest. Introduction to Psychology. New York. Harcourt, Brace, 1967. pp. 139-162. Modern Health. pp. 73-82. Health and Safety for You. pp. 62-72.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Acquired Behavior (cont.)	to teaching machines? List on the chalkboard the common social motives or needs that become important to most individuals as members of a group. For example: Affection — Power Belonging — Aggression Respect — Role identification Recognition Emphasize that social needs become so dominant that they often determine the course of action even when they are in conflict with physiological needs. Ask for examples of situations in which such needs as the following have resulted in conflicts: Hunger - Pride Survival - Bravery Compare with the students the characteristic patterns of social behavior that are acquired by boys and girls as they progress through the various stages of growth and development.	Text and Library Books
Group Expectancies	Point out that during infancy and childhood the family serves as the primary means for providing social experiences and for orienting the individual to expected modes of behavior. As the individual interacts with family members he gradually identifies what is expected of him as an integral part of this social unit and learns the attitudes, standards, ideals, and strivings perpetuated by it. As the maturing individual moves out from the family and interacts with other groups (peer, school, and community) he acquires new and sometimes conflicting values and modes of behavior. Ask the class to name the major forces in the community which are responsible for shaping attitudes and beliefs.	Modern Health. pp. 56-58. Health and Safety for You. pp. 62-128. Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 369-402.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Family	Ask the class to develop a list of responsibilities, achievements, aspirations, and future roles usually expected of teenagers by the family.	Text and Library Books Hilgard, Ernest. Introduction to Psychology. New York: Harcourt, Brace, 1967. pp. 118-162.
School	Discuss the extent to which the school serves as a socializing agency. Request students to name the responsibilities and expectancies required of teenagers by the school. Obtain a copy of the school motto, and examine with students the extent to which the values expressed are promoted by teachers and students. To what degree do the goals and expectancies of the school agree with those of the family?	
Peer	Appoint a panel to discuss what value systems and behavior patterns are expected of teenagers by teenagers. How do these expectancies differ and agree from those held by parents and school? Instruct the panel to analyze the values of peer groups in our society.	
Community	Ask the class to identify the contribution of other organizations within the community in helping teenagers to develop socially approved behavior patterns. What expectancies are required of teenagers by the community? What is the status of the teenager as a member of the community?	
Individual Role Identification of Individual Role	Explain that, as he matures and seeks independence, the individual's social needs broaden and shift from the desire for parental approval to that for approval by specific persons and groups outside the family. He becomes involved in new interactions and forms new relationships. Therefore, he must learn to differentiate and adapt to his varying role requirements. Discuss the importance of establishing an individual code of values or standards of conduct, and of following it consistently in adapting to various situations.	Health and Safety for You. pp. 130-140.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Identification of Individual Role (cont.)	Cite some of the many roles that an individual in a complex society must assume. For example, a man may be all of the following: a son, husband, father, business man, boss, client, and church member. Ask each student to list the individual roles that he must assume in his daily life.	Text and Library Books Hilgard, Ernest. Introduction to Psychology. New York: Harcourt, Brace, 1967. pp. 462-502.
Understanding Role of Others	Ask the class to suggest traits or factors which contribute to the improvement of interpersonal relations. Then appoint several students to present for the class a panel discussion on some controversial issue. Using the list of traits developed by the class, instruct class members to rate the interpersonal competencies of the panel members. Discuss some of the reasons for conflicts with family and peer group members. Ask class members to dramatize and to analyze role-play situations involving the following interpersonal conflicts: Parent - son or daughter Siblings Peers	Health and Safety for You. pp. 130-140.
Conformity and Individuality	Ask class members to list the things that they do just for the sake of conformity. Discuss the concept of conformity in relation to accepting and obeying the regulations, customs, and respected ways of doing things that have been established by society. Devise a situation involving the concept of conformity. Develop and administer a list of multiple-choice questions with several responses, each of which is correct. Poll the class by a show of hands to find out how many students chose each response, and record the results on the chalkboard. Allow students the opportunity to change their answers, and	Hilgard, Ernest. Introduction to Psychology. New York: Harcourt, Brace, 1967. pp. 503-524.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Conformity and Individuality (cont.)	poll the class again. Evaluate the role of conformity in influencing student decisions to change original answers. Discuss the ways in which individuality is expressed by teenagers. Analyze the statement, "have the courage of your convictions." Cite illustrations showing how courage and determination have led to scientific discovery and achievement. Hold a panel discussion on "conformity and individuality." Emphasize the effects of going to extremes in either direction. Discuss the meaning and usage of such terms in relation to behavior.	Text and Library Books Modern Health. pp. 76-82. Health and Safety for You. pp. 62-74.
Approaches to Solution of Problems	Point out that the adolescent boy or girl frequently encounters situations which involve frustration and conflict as he or she grows to maturity. Clarify the meaning of the following terms, and request the students to present examples illustrating each: Frustrations are feelings of annoyance, anger, stress, or confusion resulting from an unsatisfied need or thwarted desire, such as "not being able to use the family car for a special occasion." Conflicts are situations which arise when the individual is presented with two opposing desires that he wants to satisfy. For example, he may want to go to the movies with a friend, but he must prepare a term report which is due. Evaluate the following as satisfactory means of adjusting to frustration and of resolving conflicts in a manner which is both personally satisfying and socially approved.	Modern Health. pp. 102-108. Health and Safety for You. pp. 74-84. Hilgard, Ernest. Introduction to Psychology. New York: Harcourt, Brace, 1967. pp. 525-542.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Approaches to Solution of Problems (cont.)	--Taking direct action and attacking a problem realistically --Seeking alternate solutions --Compromising --Compensating --Retreating from the problem daydreaming procrastinating projecting the blame to others making excuses Structure several typical teenage problems for committee discussion and analysis. Assign committees to suggest a satisfactory course of action toward the solution of each problem. Ask the class to evaluate the appropriateness of the solutions suggested.	Text and Library Books
RESPONSIBILITIES Family Health Appreciation of the Family	Ask students to cite the functions served by the family unit in our society. Discuss the statement that "The family is the cornerstone of American life". Emphasize that the family is the basic social unit for transmitting the mores, customs, and folkways of a culture and provides the fundamental unit upon which all other social institutions are structured. Ask the class to list the contributions of the family unit to the personal-social needs of the teenager. Discuss the responsibilities of teenagers to the health and well-being of the family unit. What kinds of organizations have been established by official and voluntary agencies to extend or supplement the role of the family unit? (United Way, adoption agencies, Boys Town, etc.)	Health and Safety for You. pp. 141-159. Ackerman, Nathan. The Psychodynamics of Family Life. New York: Basic Books, 1958. pp. 15-25.
Mutual Respect of Family Members	Compare the roles of family members in American culture with those in other cultures elsewhere in the world. For example:	Health and Safety for You. pp. 150-151.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Mutual Respect of Family Members (cont.)	--Work loads of the mother, father, and child --Responsibilities for decision-making --Rights and privileges and status of family members Discuss factors that contribute to healthy family relations. What type of respect should exist between parents in order to strengthen the family units between parents and children, between grandparents and children, and between brothers and sisters? Ask students to discuss the extent to which they should be involved in family decision-making. Request them to list the decisions in which they believe they should have a part, those which they should be allowed to make themselves, and those which are none of their concern. Discuss the extent to which parents bear the legal responsibility for the acts of youth.	Text and Library Books Ackerman, Nathan. The Psychodynamics of Family Life. New York: Basic Books, 1958. pp. 80-95.
Factors Which Contribute to Family Health	Ask students, "Why is health the most important resource of the family?" Discuss the emotional, economic, and social effects of illness or injury of the father, mother, or child on the family unit. Develop on the chalkboard a list of factors which contribute to family health. Point out that heredity as well as prenatal influences are important in determining the health and well being of the child. Although about 97 per cent of the babies born in the United States are normal, approximately 2-3 per cent have a serious defect. About 20 per cent of birth defects may be traced to genetic origin.	Health and Safety for You. pp. 150-152.
Heredity	Review briefly ways in which genetic traits are inherited. Indicate that	Health and Safety for You pp. 35-36.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Heredity (cont.)	Life begins as a fertilized egg normally containing two sets of 23 chromosomes--one set each from the mother and father. Hereditary characteristics are transmitted from parents to offspring through the genes in the chromosomes, which determine inherited traits. Genes are made up of chemically coded molecules of deoxyribonucleic acid (DNA), the hereditary substance contained in the nucleus of all cells (usually known as chromatin). Thousands of genes occur in pairs. Each gene pair is responsible for determining a specific trait. Some genes are dominant, and others are recessive. If both genes in a specific pair are dominant, or if one is dominant and the other is recessive, the dominant trait will usually become apparent. Recessive traits become apparent only when both members of the gene pair are recessive. Partner genes failing to show the dominant-recessive relationship express the trait which is intermediate between the two. Certain genes are termed sex-linked, or X-linked, because they are carried in the sex-determining X chromosome (XX = female; XY = male). The remaining 22 pairs of chromosomes are termed autosomes. Some genes lead to normal and some lead to abnormal traits. Expression of traits is based on the laws of probability. Request students to prepare a chart tracing the history of eye color in the family. List some of the health problems that may be traced to genetic origin, and discuss programs for their detection and treatment. (See page 112 for teacher resource information).	Text and Library Books Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 425-433. Hutchins, Carleen Maley. Life's Key - DNA. New York: Coward-McCann, 1961. 64 pp.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Health Protection and Care Prenatal	Use charts and models to show the various stages of prenatal development and to emphasize how disruption of the intrauterine environment (effects of chemicals, radiation, maternal disease, smoking) may inhibit normal growth and development, particularly during certain stages when specific tissues and organs are forming. See pages 113-116 for a discussion of prenatal development and of some of the hazards to infant health during the prenatal period or shortly after birth. Discuss community treatment program for children with congenital defects.	Text and Library Books Fishbein, Morris, Editor. Birth Defects. Philadelphia: J. B. Lippincott, 1963. 334 pp.
Birth	Review briefly the 3 stages of the normal birth process: Dilation or opening of the cervix (neck of the uterus) These are the rhythmic uterine contractions of labor that increase in frequency and intensity to permit passage of the infant from the uterus into the birth canal. Birth of the infant. The expulsion of the infant from the birth canal. Expulsion of the placenta. This is the afterbirth which is discharged shortly following the birth of the infant. Discuss Caesarean and breech deliveries. Cite some of the causes of stillbirths. Discuss the medication and care of the newborn infant immediately following birth. Emphasize the need for prenatal, natal, and postnatal medical care.	Facts Aren't Enough. Chicago: American Medical Association, 1960. pp. 26-29. Schifferes, Justus J. Essentials of Healthier Living. New York: John Wiley and Sons, 1967. pp. 245-261.
Infancy and Childhood	List necessities which the family must provide to assure the optium growth and development of the child during infancy and childhood. Ask students to analyze public health statistics to identify the greatest health hazards during this	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 343-365.

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Infancy and Childhood (cont.)	growth period. How can these hazards be prevented?	Text and Library Books
Adolescence	List some of the necessities that the family must provide to assure the optimum growth and development of the adolescent. To what extent should the adolescent be responsible for providing these necessities?	
Teenage Role	Discuss the role of the teenager in the family unit. To what extent are his responsibilities in the family unit changing?	Health and Safety for You. pp. 141-160.
Transitions from Parental Dependence to Independence	Hold a panel discussion on "attaining independence." Identify some of the transitions to complete independence. Ask the class to identify the tasks, or goals, that one must accomplish in order to be considered independent. Identify the role of the family in serving as a "launching center" for the teenager as he learns to accept the responsibilities that accompany independence. Why is age a poor criterion for determining acceptance of the responsibilities that lead to independence?	Ackerman, Nathan. The Psychodynamics of Family Life. New York. Basic Books, 1958. 379 pp.
Early Marriage	Hold a panel discussion on the problems of early marriage. Discuss some of the responsibilities that accompany marriage. When is a person considered ready for marriage in our society? What is the average age for marriage?	Preparation for Marriage. Chicago: American Medical Association, 1960. 47 pp.
Community Citizenship	Ask the class to identify some of the privileges and responsibilities of the young man and woman in our society. How do these compare with those of young people in other countries?	Health and Safety for You. pp. 157-159.
Development of a Philosophy of Life	Ask each student to write an essay stating his personal philosophy of life, including his future goals and aspirations and an approximate timetable for accomplishing them.	

UNIT III

TRANSITIONS TO MATURITY

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Socially Responsible Behavior	Ask the class, "What is meant by socially responsible behavior?" Discuss some of the reasons why the acquiring of socially responsible behavior is especially important during the teen years. List some of the records that remain with the individual throughout his lifetime. Analyze the life record of the late John F. Kennedy with that of his accused assassin. Ask each student to record three incidents that he has observed which best exemplify socially responsible behavior.	Text and Library Books Crow, Lester, and Alice Crow. Adolescent Development and Adjustment. New York: McGraw-Hill, 1965. pp. 475-408

III. TEACHER RESOURCE INFORMATION

CONTENT	BACKGROUND INFORMATION FOR TEACHERS ONLY	RESOURCES
	The Role of the Endocrine Glands in Growth and Maturation 1. The Pituitary Gland (anterior lobe) Somatropin. This is the hormone which regulates general body growth, especially of the long bones and the fusing of the epiphyses. An oversecretion of this hormone during the growth period may produce giantism. Hypersecretion after the growth period is completed may cause the enlargement of certain body parts, such as the hands, feet, and lower jaw. An insufficient secretion of this hormone can limit growth to that of a midget. Thytrotrophic hormone. This is the thyroid stimulating hormone which is essential for the proper functioning of the thyroid gland. The gland in turn secretes the hormone thyroxin, which aids in the control of metabolism and in the normal development of the body. Adrenocorticotropic hormone (ACTH). This hormone is essential for the proper functioning of the adrenal cortex. The cordicoid hormones which are secreted from the adrenal cortex have some influence on the development of the sex organs. Gonadotropic hormones. The follicle-stimulating hormone (FSH) initiates the process of ovulation in the female and spermatogenesis in the male. The luteinizing hormone (LH) stimulates the ovaries and testes to secrete estrogens and androgens. In the male, LH is referred to as the interstitial-cell-stimulating hormone (ICSH). These hormones are responsible for the development of the secondary sex characteristics. Both are excreted normally in the urine of all persons, male and female. A third hormone, prolactin (lactogenic hormone or luteotropin) promotes lactation and stimulates	Text and Library Books Health and Safety for You. pp. 356-362. Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 491-492.

CONTENT	TEACHER INFORMATION	RESOURCES
	the continued secretion of the hormone (progesterone) which initiates certain changes in the uterine lining in preparation for pregnancy. 2. The Gonads (sex glands) The Testes. These two oval-shaped glands are suspended from the groin of the male in an external sac of skin called the scrotum. These organs serve two important functions: a. The production of the androgenic hormones (chiefly testosterone) which are responsible for the secondary sex characteristics in the male. b. The production of spermatozoa. The sperm cells are produced in the hundreds of tiny seminiferous tubules which are contained in each testis. Although mature, sperm are not produced until puberty. The germ cells from which they are derived are formed during the embryonic stage. The Ovaries. These two almond-shaped glands, which are located in the pelvis of the female, serve several important functions. They include: a. The production of the estrogenic hormones which are responsible for the secondary sex characteristics in the female and the menstrual cycle. b. The cyclic development of the egg-containing sac-like structure, the Graafian follicle,	Text and Library Books

UNIT III

TRANSITIONS TO MATURITY

CONTENT	TEACHER INFORMATION	RESOURCES
	and the subsequent maturation and release of the egg cell from the ovarian cortex. Although the ovaries contain thousands of potential egg cells at birth, approximately 400 egg cells are released between the ages of about 12 to 45-50, usually 1 cell at a time. These are issued alternately from each ovary every 28 days. After its release, the mature ovum passes into the Fallopian tube. c. The secretion of the hormone progesterone. Immediately following the release of the egg cell, the follicle fills with hormone-secreting cells called the corpus luteum, or yellow body. This hormone serves several important functions including the prevention of another egg from maturing until the onset of the next ovulatory cycle, the preparation of the uterine lining for the reception of the fertilized egg, the cessation of menstruation and ovulation during pregnancy, the prevention of early miscarriage, and the preparation of the cells of the mammary glands for milk secretion. (The anterior pituitary hormone, prolactin, causes milk secretion.) If fertilization does not occur, the corpus lutem deteriorates, the uterine lining sloughs off, and menstruation occurs. Development of the Reproductive System Female Ovaries. Function in the production and maturation of the egg cell and in the secretion of hormones.	Text and Library Books

UNIT III

TRANSITIONS TO MATURITY

CONTENT	TEACHER INFORMATION	RESOURCES
	Fallopian tubes. Provide a passageway for conducting the egg cell from the ovaries to the uterus. The funnel-shaped outer ends (fimbria) help to guide the egg cell into the tube following its eruption from the ovary. The two tubes which lie in a horizontal line above the ovaries are lined with tiny hairlike cilia which move the egg toward the uterus. Uterus. Provides protection and nourishment for the fertilized egg. The uterus is a pear-shaped, muscular organ which is suspended by ligamentous bands between the ovaries. It is capable of stretching several times its normal size in order to accommodate the growing zygote through its embryonic and fetal development. The soft mucous lining of the uterus is called the endometrium. The upper portion is called the fundus and the lower portion, or neck, which opens into the vagina is called the cervix. Vagina. Is the muscular passageway leading from the cervix, or neck, of the uterus to the outside of the body. The vaginal opening is located between the urethra, the tubular passageway for the excretion of urine, and the anus. At birth, the opening of the vagina is partially covered by a membrane, which is easily torn or broken, called the hymen. The Glands of Bartholin are located along the vaginal wall and function to lubricate the mucous lining. The labia (majora and minora). Are the folds of skin and membranous tissue which form the external genitalia of the female. <u>Male</u> Testes. Function in the production of sperm cells and in the secretion of hormones. These organs lie in the scrotal sac, an external pouch which protects the heat-sensitive spermatazoa	<u>Text and Library Books</u>

CONTENT	TEACHER INFORMATION	RESOURCES
	from the body's temperature. The sperm cells, together with secretions from the seminal vesticles and the prostate gland, are discharged as semen from the penis during ejaculation. Epididymis. Is the tightly convoluted tubule which lies along the posterior surface of each testis and which leads into the vas deferens. It is the main duct in which the sperm collect from the smaller semiferous tubules. Seminal vesticles. Secrete a fluid which makes up part of the semen. These two glands are located on either side of the lower pelvis and join with each vas deferens just before this continuous passageway enters the ejaculatory duct of the prostate gland. Prostate gland. Secretes a milky fluid which makes up part of the semen. This glandular organ surrounds the urethra at the base of the bladder. Enlargement of this gland may constrict the passage of urine through the urethra. Cowper's glands. Discharge a fluid which functions to neutralize the acid in the urethra in preparation for the passage of sperm and to lubricate the urethra. These two small glands are located at the base of the penis. Penis. Forms the external sex organ of the male and contains the passageway for urine and semen. This muscular organ is composed of columns of erectile tissue which become engorged with blood during sexual stimulation, causing the penis to become erect. Ordinarily, the penis is soft and flaccid. A loose skin, called the foreskin or prepuce, covers the head of the penis to the urethral opening. The sensory center or head is called the glans penis.	Text and Library Books Facts Aren't Enough. Chicago: American Medical Association, 1960. pp. 24-26. Preparation for Marriage. Chicago: American Medical Association, 1960. pp. 10-20. Consult a physiology textbook for additional information

CONTENT	TEACHER INFORMATION	RESOURCES
	Health Problems of Genetic Origin Chromosomal abnormalities. These are errors in the number or structure of the chromosomes which result from improper cell division, either mitosis or meiosis. An example is mongolism, in which the total number of chromosomes contained in each body cell is 47 instead of the usual 46. This condition causes mental retardation and occurs in about 1 in 700 babies (presence detectable in contributing parent through examination of epithelial cells). Autosomal dominant birth defects. These include abnormalities, such as extra fingers and toes (polydactylia), congenital cataracts, certain types of deafness, and dwarfism. Autosomal recessive birth defects. These include enzyme defects, or inborn errors of metabolism such as phenylketonuria (accumulation of excessive amounts of the amino acid, phenylalanine, which results from the body's inability to utilize this substance and which leads to mental retardation) and galactosemia (inability of the body to utilize milk sugar or galactose). Albinism, deaf-mutism, sickle-cell anemia, and cystic fibrosis are also manifestations of this class of genetic patterns. Sex-linked (X-linked) recessive birth defects. These include two common varieties of color-blindness, hemophilia, and a childhood variety of muscular dystrophy. Birth defects having no discernible genetic pattern. These are thought to have some genetic origin because they tend to "run in families." Cleft palate, harelip, and club foot are examples.	Text and Library Books Fishbein, Morris. Editor, Birth Defects. Philadelphia: J. B. Lippincott, 1963. 334 pp.

CONTENT	TEACHER INFORMATION	RESOURCES
	Prenatal Development Conception. Through the union of an egg cell and a sperm cell, fertilization is accomplished. The sperm cells that are ejected into the vagina work their way up through the uterus into the Fallopian tubes within 30 minutes and remain active for approximately 6 to 12 hours or more. If an egg cell is in the tube during this time interval, 1 of the 2 to 5 million spermatazoa that are discharged in a single seminal emission may successfully penetrate the ovum and fertilize it. Conception takes place the instant that this occurs, and the cell begins to divide rapidly into 2, 4, 8, and so on. Morula. As the zygote (fertilized ovum) passes down the Fallopian tube toward the uterus (1-3 days), it progresses through a series of cell divisions, or cleavages, forming first a mulberry-like cluster of cells called a morula. Blastocyte. Upon reaching the uterus (3-6 days), the cluster of cells develops into a fluid-filled cellular membrane containing an inner mass of cells at one end, from which the embryo as well as other structures will e ventually develop. The outer cellular membrane develops into the fetal portion of the placenta, the chorion, which will attach to the uterine wall. Germ layer formation (Gastrulation). While implantation of the blastocyte into the uterine wall is taking place (about the second week) the mass of cells within the blastocyte (inner cell mass) flattens, giving rise to the amnion, the extra-embryonic membrane sac which contains the fluid surrounding the embryo, and to the 3 specialized layers of cells which form the embryo. These are as follows: The outermost layer of cells(the ectoderm) forms the brain and nervous system, the outer covering of the	Text and Library Books Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 344-349. Facts Aren't Enough. Chicago: American Medical Association, 1960. pp. 17-29. Schifferes, Justus J. Essentials of Healthier Living. New York: John Wiley and Sons, 1967. pp. 225-260.

CONTENT	TEACHER INFORMATION	RESOURCES
	body, the skin, hair, and nails, and the mucous linings of the mouth, nose, and rectum. The innermost layer (endoderm) forms the inner linings of the digestive tract, the respiratory tract, and a portion of the urogenital system. The middle layer (mesoderm) gives rise to bone, muscle, connective tissue, blood, bone marrow, lymphatic tissue, and the linings of body cavities.	Text and Library Books
	Advancing embryonic development. After approximately 3½ weeks, the embryo assumes an elongated shape to form the body cavity. The nerve cord (from which the brain and nervous system will develop) and the digestive tract appear as two tubes within this structure. Muscle segments from the middle germ layer (mesoderm) beneath begin to form on either side of the neural tube. By the end of the first month, the following are apparent: --The early development of the brain, heart, and liver --The formation of limb buds that will develop into arms and legs by the 6th week --The beginning structures of the eyes and ears --The evidences of gill slits and a tail By the end of the second month the embryo exhibits the general features and body form of a human infant: --The beginnings of all organ systems have developed --The facial features (eyes, ears, and mouth) fingers, and toes have formed --The bones are beginning to harden	Schifferes, Justus J. Essentials of Healthier Living. New York: John Wiley and Sons, 1963. pp. 159-164. Consult a physiology text-book for additional information.

CONTENT	TEACHER INFORMATION	RESOURCES
	Fetal development. From the 3rd week to the 9th month: -- The completion of the organ systems will take place -- The teeth will be formed in the gums -- The hair and nails will develop -- The fetal heartbeat will be evident By the 9th month the fetus will have increased in weight from 0.00000035 ($.35 \times 10^{-6}$) ounces at conception to an average of almost 6 pounds 4 ounces and in mass from a single cell to many millions of cells. The Extraembryonic Membranes **Amnion.** The membrane sac which contains the amniotic fluid surrounding the embryo. **Chorion.** The outer sac-like membrane encasing the amnion sac; its external surface contains villi which become embedded into the uterine living to form the embryonic placenta. The villi, which are bathed in maternal blood, contain embryonic blood vessels through which the infant's blood circulates. An interchange of nutrients and oxygen from the mother's blood and of waste products from the infant's blood takes place by the process of diffusion through the chorionic villi. **Placenta.** The disc-shaped organ which is formed from the chorion and to some degree from the uterine lining. With the exception of certain viruses, drugs, blood-borne diseases, and antibody reactions, the placenta serves as a protective barrier as well as a diffusable membrane. It also secretes the hormone progesterone. This organ, which is about 8 inches in diameter and more than an inch in thickness at full term pregnancy, is shed as part of the afterbirth.	Text and Library Books Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 344-349. Schifferes, Justus J. Essentials of Healthier Living. New York: John Wiley and Sons, 1967. pp. 245-261. Preparation for Marriage. Chicago: American Medical Association, 1960. pp. 40-42.

CONTENT	TEACHER INFORMATION	RESOURCES
	Umbilical cord. The attachment between the fetus and the placenta which contains the umbilical blood vessels. The cord, which is approximately 21 inches long at full term pregnancy, is shed along with the placenta as the afterbirth.	Text and Library Books
	Hazards During the Prenatal Period or Shortly After Birth	
	Chemical hazards. Noxious chemicals, excessive drug dosage, malnutrition causing severe vitamin deficiency, and insufficient oxygen supply to embryonic tissue, may lead to congenital abnormalities, including malformation of the limbs, as in the case of the sedative drug thalidomide, and mental retardation.	National Foundation Pamphlet Series on Birth Defects
	Disease hazards. Several infections are known or suspected to be responsible for birth defects. German measles virus (rubella) in the mother during the first 3 months of pregnancy may lead to eye defects, deafness, mental retardation, heart defects, harelip, and cleft palate.	Byrd, Oliver E. Health. 3rd ed. Philadelphia: W. B. Saunders, 1962. pp. 330-350.
	Radiation hazards. Radiation (x-rays and nuclear radiation) may lead to genetic damage resulting in breakage of the chromosomes and/or alteration of the genes. Abnormalities of the nervous system, mental retardation, and eye defects are among the congenital malformations caused by radiation hazards.	U. S. Department of Health, Education, and Welfare, Public Health Service Vital Statistics of the United States (U. S. Government Printing Office, Washington 25, D. C.).
	Tobacco smoke hazards. Tobacco smoke constituents may be responsible for infant prematurity and underweight.	
	Blood group incompatibilities. ABO and Rh incompatibilities constitute about 96 per cent of the cases of blood group sensitivities (antigen-antibody reactions between blood types of the mother and the infant). These incompatibilities lead to anemia and jaundice in the fetus and new born infant. They may be responsible for stillbirth and other abnormalities.	

IV. EVALUATION

Certain techniques have proved helpful in ascertaining student progress toward the stated purposes of this unit. Following are several examples:

A. Suggestions for Evaluating Student Progress

1. Classwork Performance

a. Participation in Panel Discussions and Group Work
b. Oral and Written Reports

2. Tests and Inventories

a. Application of Principles of Growth and Maturation. Students are asked to analyze the average growth patterns of maturing boys and girls and to apply the principles of growth and maturation to individual variations in growth rate, body structure, and other characteristics.
b. Points of View and Beliefs Concerning Adolescent Privileges and Responsibilities. Lists of statements which reflect various adult privileges and responsibilities are presented to students. They are requested to identify those which they feel should be granted to the adolescent. Request students also to react to the statements from the point of view of a parent.
c. True-False Statements on Superstitions as They Relate to Congenital Defects. Lists of statements which reflect various causes for birthmarks and congenital malformations are presented to students. They are asked to react to each statement on the basis of its scientific accuracy.
d. Sentence Completion Tests. Students are instructed to complete statements such as the following: "The most important decision a teenager has to make is _____."
e. Multiple Choice Tests on Knowledge and Attitudes.

B. Suggestions for Helping the Student to Evaluate His Own Progress

1. Student Checklists

IV. EVALUATION (cont.)

2. Self-Evaluation Rating Scale. Students are asked to rate themselves on the following aspects of behavior:

Getting along with myself
Getting along with family members
Getting along with boys and girls of my own age
Getting along with older people

C. Teacher Records and Observations

1. Student Autobiographies
2. Ratings of Student Behavior in Group Situations
3. Interviews and Conferences
4. Recorded Incidents of Student Behavior Both in and out of the Classroom

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

I. SCOPE OF THE UNIT

The misuse of drugs and other harmful substances is one of the most pressing problems confronting this community. Among United States cities, Los Angeles ranks third in rate of drug addiction and in California represents 75 per cent of the narcotics problem. The misuse of alcohol costs the taxpayers of Los Angeles County approximately 15½ million dollars each year. Recent medical findings which link smoking with respiratory and circulatory diseases and premature death have spotlighted still another community problem.

Educators have been charged with the responsibility for alerting youth to the harmful effects of such substances for recent legislation recognizes that the schools are in a unique and influential position to inculcate scientific understandings and wholesome attitudes which will enable students to live personally satisfying and socially useful lives.

This unit is directed toward helping the high school student to

Develop an understanding of the dangerous physiological, psychological, and sociological effects resulting from the misuse of narcotics and other dangerous drugs.

Gain an accurate understanding of the effects of alcoholic beverages on the individual and on society.

Learn the effects of smoking on health and to form intelligent decisions concerning the use of tobacco products.

A maximum of three weeks is suggested for completion of this unit. The outline of course content, lists of suggested activities and reference materials, and an explanation of evaluation procedures follow.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

OUTLINE

A. DEPRESSANTS, STIMULANTS, AND HALLUCINOGENS

1. Nature and General Effects
2. Legitimate Uses
3. Addicting and Habit-Forming Substances

B. NARCOTIC AND OTHER DANGEROUS DRUGS -- A SOCIAL PROBLEM

1. Classification and Legal Definition
2. Use and Abuse of Drugs
3. History of Drug Use and Control
4. Extent of Drug Abuse
   a. International
   b. National
   c. Local
5. Dangers of Drug Abuse
   a. Synthetic Analgesics with Morphinelike Effects
   b. Morphine
   c. Codeine
   d. Dihydrocodeinone (Percodan)
   e. Heroin
   f. Barbiturates
   g. Tranquilizers
   h. Chloral Hydrate
   i. Marihuana
   j. Cocaine
   k. Amphetamines and Related Compounds
   l. Mescaline and Related Hallucinogenic Drugs
   m. Acetylsalicylic Acid
   n. Sodium Bromide
   o. Antihistamines
   p. Other Noxious Chemical Substances
6. The Abuse of Drugs as an Individual and a Community Problem
7. Law Enforcement and the Abuse of Drugs
8. Treatment and Rehabilitation of Drug Misusers
9. The High School Student and the Misuse of Drugs

C. ALCOHOL

1. The Use of Alcohol in Our Society
2. The Use of Alcoholic Beverages as a Social Problem
3. Nature and Major Classes of Alcoholic Beverages
4. Alcohol and the Human Body
5. Motivations Concerning the Use of Alcohol
6. Alcoholism
   a. Effects
   b. Treatment and Rehabilitation
7. Alcohol Legislation
8. Alcoholic Beverages and the High School Student

D. TOBACCO

1. Developments in Tobacco Research
   a. Constituents of Tobacco Smoke
   b. Effects of Tobacco Smoke Constituents on the Human Body
2. Motivations Concerning the Use of Tobacco
3. Economic Factors Related to Tobacco
   a. Expenditures
   b. Tobacco and the Economy
4. Tobacco and the High School Student

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
DEPRESSANTS, STIMULANTS, AND HALLUCINOGENS Nature and General Effects	Review the terms "depressant," "stimulant" and "hallucinogen" as used in the classification of chemical agents which interfere with the normal activity of the brain and nervous system. List some of the general effects produced by these types of drugs, and present examples of substances which act as stimulants, depressants and hallucinogens. Indicate that: Substances which tend to lower the functional activity of the central nervous system are classified as depressants. Included are the so-called analgesics, sedatives, and hypnotics. Examples are opium, its derivatives (codeine, morphine, percodan, and heroin), and synthetic substitutes (meperidine and methadone); the barbiturates (sleeping pills); ethyl alcohol; acetylsalicylic acid (aspirin); the bromides (Bromoseltzer, Nervine); and the tranquilizers (meprobamate). Substances which tend to excite or to arouse the brain and nervous system are classified as stimulants. Examples are amphetamine ("pep" or "stay awake" pills), cocaine, and such caffeine-containing substances as coffee, tea, and cola beverages. Substances which tend to excite the nervous system to distort time and depth perception, and to produce illusions or hallucinations, are called hallucinogens. Examples are marihuana, LSD, and mescaline.	Text and Library Books State of California Interdepartmental Committee on Narcotics. California Faces the Drug Abuse Problem. Sacramento: California State Printing Office, 1963. pp. 1-2. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. p. 13. Houser, Norman. Drugs - Facts on Their Use and Abuse. Scott, Foresman, 1969. 48 pp.
Legitimate Uses	Cite some of the legitimate uses of mind-altering drugs. Emphasize that they have profound physiological effects and should be used only as prescribed by a qualified	Modern Health. pp. 158-159.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Legitimate Uses (cont.)	member of the medical profession. Unsupervised use, which includes self-medication even by a physician or dentist, including large doses and repeated doses, can lead to habituation or addiction, body damage, prolonged unconsciousness, or even death. Because these drugs affect sensory perception, they can cause persons to be involved in serious accidents. Develop a bulletin board of current events to help illustrate the nature and extent of problems resulting from the misuses of potentially harmful substances.	Text and Library Books
Addicting and Habit-Forming Substances	Cite the differences between addicting and habit-forming substances. Analyze the following definitions by the Expert Committee on Addiction-Producing Drugs of the World Health Organization[1]: Drug Addiction Drug addiction is a state of periodic or chronic intoxication produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include 1. An overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means Drug Habituation Drug habituation (habit) is a condition resulting from the repeated consumption of a drug. Its characteristics include 1. A desire (but not a compulsion) to continue taking the drug for the sense of improved well-being which it engenders	Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 11-13. "Experimental Drug Addiction," Scientific American, 210 (March, 1964), 46-52.

[1]Proceedings-- White House Conference on Narcotic and Drug Abuse, September 27-28, 1962 (U.S. Government Printing Office, Washington 25, D. C.), p. 289.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION		RESOURCES
Addiction and Habit-Forming Substances (cont.)	Drug Addiction (cont.)	Drug Habituation (cont.)	Text and Library Books
	2. A tendency to increase the dose	2. Little or no tendency to increase the dose	
	3. A psychic (psychological) and generally a physical dependence on the effects of the drug.	3. Some degree of psychic dependence on the effect of the drug, but absence of physical dependence and, hence, absence of an abstinence syndrome.	
	4. Detrimental effect on the individual and on society	4. Detrimental effects, if any, primarily on the individual	
	Emphasize that any substance which is taken regularly can be habit-forming in the sense that the user becomes psychologically dependent upon the drug and feels that he cannot get along without it. However, addiction also produces both tolerance, the need to keep increasing the dose to get the same effect; and physical dependence, an intense physiological craving for continued use of the drug to prevent the onset of withdrawal illness. The symptoms of withdrawal illness may include profuse sweating, sleeplessness, vomiting, diarrhea, severe cramps in the legs, back, and abdomen, loss of weight, fever, loss of appetite, and muscle spasms.		Modern Health. p. 159.
	Request class members to apply the World Health Organization's criteria for defining addicting and habit-forming drugs to lists of well-known substances, such as the opiates, the barbiturates, cocaine, amphetamine, marihuana, headache remedies, laxatives, caffeine, nicotine, and alcohol. Ask the students to substantiate their reasons for classifying a substance as addicting, habituating, or both.		

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
NARCOTIC AND OTHER DANGEROUS DRUGS -- A SOCIAL PROBLEM Classification and Legal Definition	Differentiate between the legal and the popular usage of the terms "narcotics" and "dangerous drugs". Point out that the drugs which are subject to control by the Harris Act and the Marihuana Tax Act are legally defined as narcotics. The drugs specifically cited in this legislation include stimulant as well as sedative, or narcotic, type substances. For example, cocaine is a powerful stimulant, and the opiates, (including their synthetic equivalents) are sedatives. New drugs with addicting properties may be placed under Federal narcotic control by Presidential Order. The Health and Safety Code of California (Sections 11001-11002) also defines narcotic drugs by listing them by specific name. Indicate that addicting drugs not covered by Federal narcotic laws and specifically cited as "unsafe for self-medication"by the Food and Drug Administration are termed "dangerous drugs". Such drugs may be dispensed legally only upon the prescription of a licensed practitioner. The Health and Safety Code of California (Section 29001) also defines a "dangerous drug" as "any drug unsafe for self-medication". Listed among the drugs specifically cited are hypnotic (barbiturates) as well as stimulant (amphetamines) type substances. Instruct students to develop a glossary of terms which include the following: Sedative. A drug which in moderate quantities relieves pain and anxiety, causes mental and physical relaxation, and usually produces sleep. Such drugs have a numbing effect on consciousness and in larger doses produce stupor, coma, and death. Narcotic. A drug that produces sleep, causes mental or physical inactivity, relieves pain, produces a numbing effect, and in large doses causes stupor, coma, and	Text and Library Books Proceedings -- White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.). p. 290. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 13-27.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Classification and Legal Definition (cont.)	death. Legally, narcotics refer to certain drugs specifically named in the Harrison Narcotic Act and include both stimulant and depressant substances. Hypnotic. A sedative drug whose effect is to cause indifference to external stimuli. Respiration rate is lowered in direct ratio to the dose. Overdose may cause respiratory failure. Hallucinogen. A drug which elicits, in normal subjects, optical or auditory hallucinations, depersonalization, perceptual disturbances, and disruption of thought processes.	Text and Library Books
Use and Abuse of Drugs	Discuss the purposes of federal and state laws relating to the distributing and dispensing of drugs. List some of the procedures through which the distributing and dispensing of narcotics and other dangerous drugs are regulated in an effort to assure that such drugs are readily available for medical treatment, while at the same time not being illegally diverted for misuse. Following are examples: 1. Registration of licensed practitioners dealing in the administering and dispensing of narcotic drugs. The issuance of a permit bearing a registry number allows the practitioner to order, administer, and dispense narcotics. Persons so authorized must maintain records and inventories which are subject to inspection by narcotics officers. 2. Use of triplicate prescription form for the dispensing of narcotic drugs. This makes records available concerning the prescriptions written by a physician, the drug purchases made by a	Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). 330 pp. Health and Safety Code of the State of California.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Use and Abuse of Drugs (cont.)	single patient, and the stores where such purchases were made. 3. Classification of dangerous and addicting substances as prescribed drugs. Such drugs may not legally be dispensed without a prescription. 4. Labeling of drugs, which, where applicable, provides restriction against refills, warning of habit-forming properties, and specification of persons authorized to dispense the drug. 5. Control of importation, manufacture, and distribution of narcotic and dangerous drugs. Identify and discuss briefly California laws relating to the dispensing of narcotic and dangerous drugs. Following is a partial listing: Validity of prescription. Responsibility for the proper prescribing and dispensing of narcotic drugs is upon the practitioner, but a corresponding liability rests with the pharmacist who fills the prescription (11162.5). (29020 pertains to dangerous drugs). Narcotic prescription for addict forbidden. No person shall prescribe for, or administer, or dispense a narcotic to an addict. (11164). False or fictitious prescription. No person shall issue a prescription that is false or fictitious in any respect (11165). (29030 pertains to dangerous drugs). Possession, etc., of narcotic forbidden. Except as otherwise provided . . . no person shall possess, transport,	Text and Library Books Health and Safety Code of the State of California.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Use and Abuse of Drugs (cont.)	sell, furnish, administer, or give away, or offer to transport, sell, furnish, administer, or give away, or attempt to transport a narcotic except upon the written prescription of a physician, dentist, chiropodist, or veterinarian licensed to practice in this State (11500). (29023 pertains to dangerous drugs). Forgery, Alteration, etc., of prescriptions. Every person who forges or alters a prescription or who issues or utters an altered prescription, or who issues or utters a prescription bearing a forged or fictitious signature for any narcotic, or who has in possession any narcotic secured by such forged, fictitious, or altered prescription, shall for the first offense be punished by imprisonment in the county jail for not less than six months nor more than one year, or in the state prison for not more than six years, and for each subsequent offense shall be imprisoned in the state prison for not more than ten years. (11715) (29030 pertains to dangerous drugs).	Text and Library Books
History of Drug Use and Control	Trace the history of the use of addicting substances. Indicate that: The effects of opium, hashish (marihuana), and cocaine have been known for centuries and were used for ceremonial purposes among primitive societies. Opium was used medicinally by the Sumerians, Egyptians, Persians, and Greeks and by the Europeans since the time of Christ. THis drug was introduced into the American colonies as a medicament. However, the problem of addiction	Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 18-19.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History of Drug Use and Control (cont.)	did not become widespread in the United States until the latter part of the 19th century. Following are suggested causes for increased addiction rates during this period:[1] 1. The inclusion of narcotics in patent medicines in the latter half of the 19th century, plus widespread use by physicians for the many diseases for which there was no treatment. 2. The introduction of morphine during the Civil War coupled with the development of the hypodermic syringe resulted in overdosage by physicians ignorant of the increased potency when the drug was delivered by injection rather than by mouth. 3. The immigration during the 1860's of many previously addicted laborers from the Orient during construction of the transcontinental railroads. Construct a timeline on the chalkboard summarizing the major federal legislation enacted to suppress the illegal use of drugs. Discuss the extent to which these laws have been effective. Following is a brief summary of this legislation: 1906 Food, Drug, and Cosmetic Act provided safeguards against the mislabeling and adulteration of drugs 1914 Harrison Narcotic Law provided controls for the importation, manufacture, and distribution of the opiates and cocaine 1922 Narcotic Drug Import and Export Act limited the importation of crude opium and cocaine to the amounts needed to supply legitimate medical needs. [1] Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 271.	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History of Drug Use and Control (cont.)	1951 Boggs Act provided for the first time mandatory sentences for all narcotic offenses 1956 Boggs-David Narcotic Control Act provided more stringent penalties for narcotic violations, including a maximum possible sentence of life imprisonment or death for sale or transfer of heroin by a person more than 18 years of age to another who is under the age of 18 1960 The Narcotic Manufacturing Act provided a licensing procedure for the manufacture of basic classes of narcotics. A quota system for all narcotic drugs is established to make sure that only enough narcotic drugs are manufactured to take care of medical and scientific needs. The Commissioner of Narcotics specifies for each pharmaceutical manufacturer the amount of a certain narcotic drug that may be manufactured annually. 1965 The Drug Abuse Control Amendments to the Federal Food, Drug and Cosmetic Act provided for stronger regulation of the manufacture, distribution, delivery, and possession of stimulants, depressants and hallucinogens. 1966 Narcotic Addict Rehabilitation Act provided for civil commitment of narcotic addicts instead of prosecution for Federal offenses. 1968 Drug Abuse Control Amendments to Federal Food Drug and Cosmetic Act of 1965 increased the penalties for anyone who illegally produces, sells, or disposes of dangerous drugs, and imposes misdemeanor penalty for possession.	Text and Library Books National Clearing House for Mental Health Information. Resource Book for Drug Abuse Education. (U. S. Government Printing Office, Washington D.C., 20402)
	Ask students to construct a timeline summarizing the international agreements which have been negotiated to suppress traffic in illegal drugs. Discuss the extent to which these agreements have influenced federal legislation. Point out that the United States has participated in 9 different actions since the Shanghai Conference of 1909 to promote international	U. S. Treasury Department, Bureau of Narcotics. Prevention and Control of Narcotic Addiction. (U.S. Government Printing Office, Washington 25, D.C.). pp. 4-7

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History of Drug Use and Control (cont.)	cooperation in the control of narcotic drugs. Following is a brief summary of some of these:[1] Convention of 1912 attempted to regulate narcotic trade by requiring that all dealers and members of the medical and allied professions who produce, handle, or dispense narcotic drugs be licensed Convention of 1925 provided control of narcotic drug distribution by requiring a system of import and export certificates for international trade Convention of 1931 restricted the manufacture of narcotic drugs by requiring countries to submit estimates of narcotic needs for medical purposes and to stay within the limits for manufacture and consumption Convention of 1936 provided penalties for narcotic violations Protocol of 1948 brought synthetic drugs having addicting properties under international control Protocol of 1953 attempted to limit opium production to seven countries and to provide embargo and inspection (This agreement is not in effect since it has not been ratified by one additional opium-producing country) 1961 Convention attempted to incorporate into a single agreement all the previous actions for the control of	Text and Library Books

[1] Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 24-25.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History of Drug Use and Control (cont.)	narcotic drugs ("The United States viewed as unsatisfactory a provision which would make the 1953 protocol inoperative by allowing any country to produce 5 tons of opium for export annually; also the Soviet bloc made reservations that Communist China, Outer Mongolia, North Vietnam, North Korea, and East Germany would not be bound by the Convention as they are at present bound under the 1931 Convention. These countries were not permitted to participate in the Conference which adopted the Single Convention")[1]	Text and Libaray Books
	Request class members to identify the international organizations which exist for the control of narcotic drugs and to discuss briefly the activities of each organization. Point out that the United Nations has assumed the functions of policy and administration in the international control of narcotics, and the World Health Organization has assumed the functions dealing with the medical aspects of addicting drugs. For example: The Permanent Central Opium Board examines the international trade in narcotics, and the Commission on Narcotic Drugs of the United Nations Economic and Social Council examines yearly all aspects of international traffic in narcotic drugs. The Drug Supervisory Body reviews and establishes estimates concerning narcotic needs and production. The Division of Narcotic Drugs of the United Nations publishes bulletins, prepares summaries of seizure reports, conducts a laboratory for determining the source	U. S. Treasury Department, Bureau of Narcotics. Prevention and Control of Narcotic Addiction. (U.S. Government Printing Office, Washington 25, D.C.). pp. 8-9. Vogel, Victor and Virginia Vogel. Facts About Drug Addiction. Chicago: Science Research Associates, 1967. pp. 12-16.

[1] Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U.S. Government Printing Office, Washington 25, D.C.). pp. 25.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History of Drug Use and Control (cont.)	of illicit drugs, and conducts research. The Expert Committee on Addiction-Producing Drugs of the World Health Organization recommends the placing of newly discovered addiction-forming drugs under international control. Since its inception, this committee has recommended for international control 72 drugs which were found to present a danger to public health.	Text and Library Books
Extent of Drug Abuse International	Cite the major international sources of the narcotic drugs which reach this country illegally. Point out that opiates, both licit and illicit, are imported from other countries of the world. The amount needed to supply the estimated 50,000 addicts in the United States represents about 0.7 per cent of the world's total production of opium and is either diverted from licit supplies or smuggled into the country. The major sources of illicit drugs are Mexico — About 10 per cent of the heroin and about 99 per cent of marihuana comes from Mexico Europe — About 75 per cent of the heroin smuggled into the United States comes from illicit Turkish opium which has been diverted through Lebanon and Syria to laboratories in France for processing and shipping Far East — Some heroin reaches the United States through Hong Kong from Thailand, Laos, the Shan States of Burma, and the Yunnan Province of China. The Mainland Chinese are producing a large supply of the world's illicit narcotics. Most of the illicit supply from the Far East goes to	Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 27-38.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
International (cont.)	Europe South America Small amounts of cocaine reach the United States through Bolivia Discuss the activities undertaken by agencies of the United States government to suppress illegal traffic in narcotic drugs. For example: The Federal Bureau of Narcotics conducts overseas activities in which narcotic agents work with law enforcement officers of foreign countries to detect and to arrest persons who try to send narcotic drugs to the United States illegally. Equipment is made available to the Mexican government to aid in the detection and destruction of marihuana and opium poppy fields. The Bureau of Customs prevents and detects smuggling operations through inspection of baggage and examination of imported merchandise. Appoint a student panel to discuss the reasons why illicit narcotic drug traffic exists at the international level. Authoritative sources estimate that: Approximately 500 million dollars are spent annually in the United States on illicit narcotic drugs. At least 1,000 dollars are realized for every dollar invested in illegal drugs at their source. A thousand dollars worth of heroin has been estimated to bring approximately 200,000 dollars by the time it has been "cut" and sold in the form of capsules. By the time the capsule reaches the addict it may have changed hands as many as 240 times.	Text and Library Books U. S. Treasury Department, Bureau of Narcotics. Prevention and Control of Narcotic Addiction. (U. S. Government Printing Office, Washington 25, D. C.). pp. 27-31. Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 27-37. "Drug Addiction: A Review," The Journal of School Health. 34 (February, 1964), 77-86.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
International (cont.)	Less than 5 per cent of narcotics smuggled into this country is discovered at the point of entry.	Text and Library Books
National	Discuss the scope of drug abuse at the national level. Indicate that the number of addicts in the United States had decreased following World War I from an estimated 200,000 persons (1 in 400) to about 60,000 (1 in 4,000) by 1960. Since that time, drug abuse has been increasing at epidemic rates. In 1970, the President of the United States reported that an estimated 180,000 persons were addicted to the "hard" narcotics.	Proceedings -- White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.). pp. 131-148.

Assign students to report the states having the highest incidence of drug addiction and to suggest some of the factors which may be responsible for these rates.

ACTIVE NARCOTIC ADDICTS IN THE UNITED STATES -- 1967[1]

State	Number	Per Cent
New York	32,347	52.0
California	7,457	12.0
Illinois	6,567	10.5
New Jersey	2,840	4.5
All Others	12,045	21.0
Totals	62,045	100.0

The leading cities in active narcotic addicts were New York, Chicago, Los Angeles, Detroit, Washington, D.C., San Diego, Newark, and Buffalo.

[1] Federal Bureau of Narcotics

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
National (cont.)	Discuss the activities of federal, state, and local law enforcement agencies in suppressing the illicit drug traffic among the several states.	Text and Library Books
Local	Point out that Los Angeles has the third highest rate of addiction among cities in the United States and represents about 75 per cent of California's narcotic problem. Ask the class members to list the factors which contribute to the narcotics problem in Southern California. Such a list should include: 1. Geographic proximity to Mexico (California shares 150 miles of border with Mexico). About 70 per cent of local heroin and 100 per cent of local marihuana is of Mexican origin. 2. Harbor and airport facilities serving international commerce (California has about 1200 miles of ocean shoreline.) 3. Densely populated metropolitan areas compounding the problem of law enforcement. Analyze with students some of the reasons why the nature of the narcotic problem in Southern California is shifting from heroin and marihuana to that of dangerous drugs. Emphasize that more stringent prison sentences for narcotic violations and the nominal cost of the dangerous drugs have been largely responsible for the sharp increases in the sale of the barbiturates and the amphetamines. The lack of legislative controls on the production and distribution of the dangerous drugs has resulted in large legal shipments to Mexican border towns for diversion back to the United States.	Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 39-40.
Dangers of Drug Abuse	Point out the risks involved in experimentation with drugs. These include:	

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Dangers of Drug Abuse (cont.)	Addiction or habituation. All drugs may be habit-forming, and some are addicting. Malnutrition. The neglect of food in preference to drugs causes the addict to become poorly nourished. Infection. Drugs contaminated by unsanitary handling, puncturing of the skin under unhygienic circumstances, and the use of an unsterilized needle make the addict highly susceptible to infections. Ulceration and abcesses of the skin and hepatitis are conditions which may be common among addicts. Cardiac and respiratory changes or failure. Drugs may stimulate (speed up) or depress (lower) vital physiological processes. Overdoses can result in death. Air injected into the veins by means of a faulty needle and syringe unit may result in an air embolism (bubble) which may cause the heart to stop beating. Sensory distortion. Drugs disrupt normal sensory perception, dull and distort judgment, and remove normal inhibition. Criminal involvement. Experimentation with narcotic and dangerous drugs leads to a life of crime. Unprescribed drugs may be obtained only through illegitimate sources. The cost is so prohibitive that the addict must resort to crime to support his habit. Unlikely recovery. Follow-up studies show that less than 15 per cent of drug addicts are cured.	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Drug Addiction. Chicago: Science Research Associates, 1961. pp. 9-11. "Drug Addiction: A Review," The Journal of School Health, 34 (February, 1964) 77-87.
Synthetic Analgesics with Morphinelike Effects	Ask for a brief report on opium. Indicate that this powerful narcotic drug is the dried, milklike juice which has been extracted from the unripe pods of a particular species of the	

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Synthetic Analgesics with Morphinelike Effects (cont.)	poppy plant, Papaver somniferum. Request students to find out what regulations exist concerning opium production and distribution in this country. Identify some of the common opiates and their synthetic equivalents. These include morphine, heroin, dilaudid, codeine, (Hycodan, Dicodid, and Percodan), and paregoric. Synthetically derived morphinelike drugs include Demerol and Methadone. The general effects of all these drugs include: 1. Depression of the cerebral cortex 2. Reduction of pain and feeling 3. Production of euphoria 4. Constriction of the pupils of the eyes 5. Dilation of the peripheral blood vessels 6. Slowing of the pulse rate 7. Decrease in blood pressure (in nonaddict only; disappears with tolerance) 8. Depression of respiration 9. Depression of metabolism 10. Constriction of gastrointestinal tract, leading to constipation 11. Development of addiction through repeated and uncontrolled use 12. Development of withdrawal symptoms when the drug is withheld Trace briefly the history and medical uses of morphine. This is an odorless, powderlike substance which may be administered by hypodermic injection, or in the form of powders, pills, or capsules. Prescribed medically, morphine is used to: 1. Allay severe pain after serious or extensive surgery 2. Lessen pain in some incurable disease 3. Relieve anxiety associated with pain	Text and Library Books Modern Health. pp. 159-160. Health and Safety for You. p. 175.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Morphine (cont.)	Review several of the reasons why the use of morphine is carefully controlled by physicians. These include: 1. Morphine is reportedly 10 times stronger than opium. Hence, it is more highly addicting 2. As tolerance develops, dosage must be increased 3. The anesthetic effect of the drug is general. Control over pain is exerted through action on the central nervous system. Hence, the drug must be absorbed into the blood and carried to the central nervous system before the desired effect may be secured Discuss existing regulations concerning the dispensing of morphine. Point out that control of the illicit drug traffic in morphine consists largely of preventing the diversion through theft and forgery of the drug supply available for legitimate medical uses. List on the chalkboard several harmful effects caused by the repeated misuse of morphine, such as the following: 1. Uncontrolled use in large doses and overdoses is highly destructive to the tissues and organs of the body 2. Gradual physical and mental deterioration occurs 3. As tolerance for the drug develops, the size of the dose must be increased to secure the desired effect. Will power and self-control appear paralyzed. 4. When the use of the drug is discontinued, severe withdrawal illness occurs. Symptoms include: a. Restless sleep b. Running of eyes and nose c. Excessive yawning and sweating	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 12-13. Modern Health. p. 159. Health and Safety for You. p. 173.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Morphine (cont.)	d. Enlarging of pupils of eyes and appearance of "goose flesh" e. Cramps in legs, back, and abdomen; painful twitching of muscles f. Vomiting, diarrhea, loss of appetite, fever, and rapid loss of weight g. Twitching and jerking of muscles of legs and arms h. Rapid pulse and respiration 5. Overdoses may cause prolonged unconsciousness, and may even cause death.	Text and Library Books
Codeine	List the medical uses of codeine. This drug is used to: 1. Relieve mild pain 2. Quiet a cough 3. Promote sleep Indicate that codeine is much weaker than morphine (about 1/6 as strong). Its power to induce sleep and to reduce pain is much less than that of morphine. Codeine is not as important as other opiates in drug abuse. In the United States, codeine is available only by prescription. However, liquid preparations in the form of cough syrups are available without prescription. Another exempt drug is paregoric. It, too, has low abuse potential because of its weak euphoric effects.	Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 12-13. Modern Health. p. 159. Health and Safety for You. p. 175.
Dihydrocodeinone (Percodan)	Ask for a report concerning the regulations of the drug which is known as Percodan. This drug is a chemical relative of codeine and is derived from thebain, one of the numerous opium alkaloids. This drug possesses greater potential than codeine as both a pain reliever and an addiction producer.	Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.). p. 281.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Heroin	Point out that heroin is the major drug of illicit narcotic traffic in the United States. It is estimated that a majority of the drug addicts are heroin users. This drug is a derivative of morphine and in its pure form (85 to 90 per cent is considered pure) is approximately 3 times the strength of morphine. The medical use of heroin is forbidden in the United States and many other nations of the world. Most heroin obtained through illicit channels has been cut with substances, such as milk sugar, to the extent that most capsules contain about 1½ grains of about 3 to 5 per cent heroin. Use the following example to demonstrate to students the amount of profit that 1 pound (454 grams) of heroin (90 per cent pure) costing $1,000 would bring on the illicit market when cut with milk sugar or a similar substance and sold in capsules containing 2 to 5 per cent heroin at $5 each. Example: Per cent purity: 90 45 22.5 11 5.5 2.8 Amount of dilution: 1 2 4 8 16 32 Results: 454 grams x 10 capsules per gram x 32 x $5 = $726,400 -1,000 Profit $725,400 Cite some of the harmful effects of heroin. The drug is a white, powdery substance which is usually purchased in capsule form. Pharmacological effects of heroin are similar to those of morphine. At first, usually, the drug is sniffed in powdered form. As tolerance develops, however, the user becomes more addicted to the drug. Then, he must inject it directly into the vein to obtain a more rapid and pronounced effect. Repeated misuse of heroin produces effects such as the following:	Text and Library Books Mauer, David, and Virginia Vogel. Narcotics and Narcotic Addiction. Springfield, Illinois: Charles C. Thomas, 1954. pp. 53-58. "Drug Addiction: A Review," The Journal of School Health. 34 (February, 1964), 79. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. p. 13. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 11-12.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Heroin (cont.)	1. Marked deterioration of personality and character occurs. A physiological and psychological craving for the drug develops, and the total energy of the individual is directed toward one objective--support of the addiction. Personal cleanliness, self-respect, and moral standards are abandoned. The addict readily turns to crime in order to obtain enough money for the purchase of the expensive drug. 2. Deterioration of physical and mental health results. Several of the symptoms are: --Malnutrition --Constipation --Loss of appetite --Restlessness --Nervousness --Hallucinations --Susceptibility to infections --Presence of punctures and sores on the arms from hypodermic needles 3. The user has severe withdrawal illness resulting from dehydration of body tissues when he does not take the drug. The effects are similar to those experienced with morphine. 4. The life span of the heroin addict is shortened at least 20 to 25 years. The sharp decline in the number of drug addicts over 35 years of age helps to substantiate the inference that there is a high death rate among young drug addicts.	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Barbiturates	Indicate that the barbiturates are depressant drugs having sedative and hypnotic effects. They are known as "sleeping pills" to the layman and by a variety of slang names to the addict, depending upon the color of the capsule which contains the drug ("red devils," "blue angels," "yellow jackets," and the like). The 21 barbiturate drugs which are listed for use in the United States are prepared from barbituric acid, a synthetically prepared crystalline powder. Their names usually end in "al" indicating a relationship to barbital, the first drug of this type to be manufactured. The barbiturate drugs usually are sold in 1 to 1½ grain capsules under such names as Nembutal, Seconal, Phenobarbital, and Amytal. Point out the medical values of the barbiturates. Variation in speed of action, duration, and effectiveness of the various barbiturates make available to the physician and dentist a wide variety of sedative and hypnotic compounds for different degrees of use. They are prescribed to: 1. Alleviate physical and mental distress 2. Induce sleep 3. Inhibit convulsions, or cause partial or even complete anesthesia Cite the effects of the barbiturates. Use charts to point out the parts of the nervous system which they affect. In general, the barbiturates: 1. Produce sleep and, in large doses, anesthesia 2. Reduce conscious activity of the brain 3. Depress the cortical region of the brain which is concerned with vision, audition, and other perceptive functions 4. Impair the processes of thought and memory 5. Disturb the fine coordination of motor movements	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 14-15. State of California Interdepartmental Committee on Narcotics. California Faces the Drug Abuse Problem. Sacramento: California State Printing Office, 1963. p. 2.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Barbiturates (cont.)	6. Produce a brain wave pattern similar to that of sleep 7. Produce addiction through repeated and uncontrolled use, and in large overdoses, may cause death.[1] Discuss some of the reasons why there has been a sharp and continued increase in the misuse of barbiturates, especially among young people. Indicate that: Two-thirds of the Californians arrested for "dangerous drug" offenses (barbiturates and amphetamines) are in their late teens or twenties. At least one million persons in this country take sleeping pills, and between 10 and 25 per cent are addicted to barbiturates. More than 300 tons of barbiturates have been consumed annually since 1950. Report several harmful effects from the repeated misuse of barbiturates. These include: 1. Uncontrolled use may cause a state of acute or chronic intoxication. Symptoms include: --Difficulty in thinking --Inability to perform simple calculations --Defective judgment --Inability to coordinate	Text and Library Books Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 35-40.

[1] Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). p. 284.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Barbiturates (cont.)	--Unsteadiness of walk --Slurring of speech --Confusion of time relationships 2. Continued misuse causes mental and physical deterioration. Prolonged misuse of the barbiturates has a cumulative toxic effect on the central nervous system and presents a greater threat to life than the opiates. 3. As his tolerance develops for the drug, the user needs to increase the doses. 4. When use of the drug is discontinued, withdrawal illness occurs. The symptoms of barbiturate withdrawal are considered to be more dangerous than those of the opiates and include: --Nervousness and apprehension --Sleeplessness --Cramps --High fever --Increased respiration and heart rate --Dehydration of body tissues (weight loss of 10 pounds in 36 hours is not uncommon) --Nausea and vomiting --Convulsions --Characteristic symptoms of severe mental illness (psychosis) --Disruption of body processes to the point that the subject is always in danger of death Report that barbiturates are a significant factor in single automobile accidents and a leading cause of all deaths (accidental or suicidal) from internal poisoning.	Text and Library Books State of California Interdepartmental Committee on Narcotics. California Faces the Drug Problem. Sacramento: State Printing Office, 1965. p. 2.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Tranquilizers	Discuss some of the medical values of the tranquilizing drugs, such as probamate (Miltown, Equinil), and reserprine. Point out that the pharmacologic effects of these drugs are similar to those of the barbiturates, acting most strongly on the cerebral cortex and least strongly on the medulla oblongata, which contains the vital centers for the control of heart rate, respiration, and blood pressure. Also, it is thought that the tranquilizing drugs depress those portions of the midbrain which have to do with emotions. Appoint a student to find out the existing regulations concerning the dispensing of the tranquilizing drugs. Discuss some of the reasons why these drugs should not be misused.	Text and Library Books Uhr, Leonard, and James G. Miller. Drugs and Behavior. New York: John Wiley and Sons, 1966. pp. 58-62. Drugs and Driving. (U. S. Government Printing Office, Washington 25, D. C.). pp. 1-8.
Chloral Hydrate	Point out that chloral hydrate is a synthetic drug, having a pungent odor and taste. This substance is used in the chemical industry and sometimes in medicine as a hypnotic agent. Abuse of this drug may lead to habituation and to chronic poisoning. This substance is often referred to as "Knock out drops" or a "Mickey Finn". Characteristic symptoms which result from the misuse of this drug include: --Mental deterioration --Skin eruption --Fxcitement and subsequent depression of the central nervous system --Gastrointestinal disturbances (vomiting, diarrhea) --Loss of appetite and weight --Gingivitis --Foul breath --Severe thirst	Von Oettinger, W. F. Poisoning, A Guide to Clinical Diagnosis and Treatment. Philadelphia: W. B. Saunders, 1958. pp. 266-267.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Marihuana	Explain that the narcotic drug, marihuana, comes from the resins contained in the leaves and flowering tops of the female hemp plant, Cannibus sativa (The active ingredient is believed to be hydrocannabinol). This plant grows almost anywhere and has been found both wild and under cultivation in many parts of the world, including the United States. It grows rapidly in any temperate zone and reaches from 3 to 18 feet in height. Leaves are dark green in color and are covered with fine hairs. The compound leaf structure is shaped like a human hand, usually with 7 lobes or "fingers". Review briefly the history of marihuana. Report that: Use of this narcotic drug, also known as "hashish," dates back at least 4,000 years. The hemp plant was introduced into the New World by the Spaniards as a source of fiber for the manufacture of rope. With the cultivation of this plant came the practice of smoking the dried tops. This practice spread north from Mexico and eventually, to the United States. Since 1900, the use of marihuana has become a significant problem in this country. The word "assassin" is derived from "hashish" the Arabian name for marihuana. This narcotic is also used extensively in the countries of Middle Asia, the Eastern and Southern Mediterranean, and North Africa, especially Egypt. In these areas the common practice is to take the drug orally as a liquid or solid. Point out several commercial uses of the hemp plant. (Stalks and stems are used in the manufacture of rope, hats, hemp, cloth, paper, and twine. The fruit of the hemp is used for bird seed; in paint, soaps, and linoleum; and as fertilizers.)	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 16-17.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Marihuana (cont.)	Emphasize that marihuana is not used for medical purposes in the United States because its reactions are unpredictable. The drug is nonaddictive; however, medical authorities warn of the development of "subtle drug dependence" or "psychological habituation." Among the unpredictable reactions to the drug are the following: 1. Distortion in preception of time, space, and distance. (A person traveling at an extremely high rate of speed may think that he is traveling very slowly.) Objects which are close to the user may appear to be so greatly distorted that he may be afraid to step off a curb into the street. 2. Loss of inhibitions, resulting in a tendency to perform antisocial acts which ordinarily the user never would consider. 3. Intoxication, which is much like that produced from drinking alcohol. 4. Emotional dependence on the drug, which may lead to the use of other narcotic drugs. 5. Hallucinations and unusual senitivity to sights and sounds. 6. Initial feeling of stimulation 7. Eyes usually bloodshot, with pupils dilated 8. Breath that has an acrid odor like that of burning leaves. 9. Loss of interest and motivation in the achievement of constructive goals.	Williams, Richard L., et Al. The Drug Takers. New York: Time, Inc., 1965. 128 pp. Facts About Marijuana. An Instructional Bulletin. Division of Instructional Planning and Services, Pub. No. GC-17. Marihuana: Social Benefit or Social Detriment. An Instructional Bulletin. Division of Instructional Planning and Services, Pub. No. GC-16.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cocaine	Trace briefly the history of the use of cocaine. This drug is derived from the leaves of the South American plant Erythroxylon coca. The leaves, which are treated with lime to release the cocaine, for centuries have been chewed by large numbers of the Indians of Bolivia and Peru. In contrast to the opiates cocaine is a powerful stimulant. The drug was first isolated for use as a local anesthetic in about 1855; however, it has since been supplanted by synthetically derived drugs, such as novocaine and procaine. Although subject to great abuse before the enactment of the Harrison Act, the misuse of cocaine is not a significant problem in the United States. Ask the class to suggest several reasons for this. Point out that this drug: 1. Induces intense mental and physical excitation 2. Releases normal inhibitions, frequently resulting in aggressive and criminal behavior 3. Lessens hunger and fatigue 4. Produces tactile, visual, and auditory hallucinations 5. Educes feelings which may be likened to those of mental illness (paranoia) 6. Causes increasingly intense effects with continuous use; however, tolerance does not develop	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 17-18. Proceedings-- White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.). pp. 285-286. Modern Health. p. 160. Health and Safety for You. p. 175.
Amphetamines and Related Compounds	Explain that the amphetamines are a group of synthetic drugs which tend to: 1. Excite and antagonize the actions of the central nervous system 2. Cause sleeplessness 3. Stimulate the physiological process 4. Produce a state of hyper-excitability that may or may not progress to convulsions List some of the typical amphetamines and cite their medical uses. For example:	Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1961. pp. 18-19. Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.). pp. 286-287.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Amphetamines and Related Compounds (cont.)	Amphetamine Benzedrine D-amphetamine or dexedrine Methamphetamine Ephedrine These drugs create an energizing action somewhat similar to that of epinephrine (adrenaline) and have several useful functions: 1. To decrease nasal congestion. Inhaled, benzedrine constricts blood vessels and shrinks the nasal mucosa. Benzedrex inhalers are now being substituted for the more powerful benzedrine 2. To reduce appetite 3. To counteract feelings of mental depression 4. In the treatment of mental disorders Cite several reasons why the indiscriminate use of the amphetamines is especially dangerous. Following is a list of harmful effects of the amphetamines: 1. These drugs are habit-forming. Tolerance develops; however, physical dependence and withdrawal symptoms do not occur 2. They may cause palpitations, unpleasant and jittery feelings, serious illness, or even death 3. Amphetamines mask fatigue, burn up needed energy, and may lead to hallucinations, violence, and other forms of irresponsible behavior 4. They cause blurred vision, dilation of the pupils of the eyes, and impaired reaction of the eyes to light 5. They speed up the physiological processes, including increased blood pressure, respiration, and pulse rate 6. They cause dryness of mouth, halitosis, irritability, restlessness, and insomnia Appoint a student panel to examine the extent to which the misuse of the amphetamines constitutes a problem in Southern	Text and Library Books State of California Interdepartmental Committee on Narcotics. California Faces the Drug Problem. Sacramento: California State Printing Office, 1963. p. 2. Modern Health. p. 165-166.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Amphetamines and Related Compounds (cont.)	California. Discuss the misuse of the amphetamines as a cause of accidents. The hallucinations produced by large doses of amphetamine drugs are responsible for high accident rates among truck drivers who take them to insure wakefulness during trans-continental trips. Attempts to antagonize the depressant effects of alcohol or the barbiturates by combining them with the amphetamines may cause serious physical and mental disturbances and may result in death from poisoning.	Text and Library Books Drugs and Driving. (U. S. Government Printing Office, Washington 25, D. C.). pp. 1-8.
Mescaline and Related Hallucinogenic Drugs	Discuss the extent to which mescaline and the related hallucinogenic substances contribute to the drug abuse problem in the United States. List the major hallucinogenic drugs and their sources. This list should include the following: 1. Mescaline is obtained from the peyote cactus, Lophophora williamsii 2. Psilocin and psilocybin come from certain varieties of mushrooms 3. D-lysergic acid diethylamide, commonly known as LSD is derived from a fungus that grows on cereal grain Report that mescaline as well as other hallucinogenic substances has been known to the Indians of the Southwest and Mexico for centuries. The peyote buttons, which are the dried tops of the cactus, are ingested to produce certain effects during the ritualistic ceremonies of certain tribes of American Indians belonging to the Native American Church. Peyote users are eligible for treatment at the U. S. Public Health Service Hospital at Lexington, Kentucky.	"The Hallucinogenic Drugs," Scientific American 210, (April, 1964), 29-37. Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). pp. 287-288.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Mescaline and Related Hallucinogenic Drugs (cont.)	Point out that generally the hallucinogenic drugs produce: --Stimulation of the nervous system --Dilation of the pupils --Constriction of the peripheral blood vessels --Increase in blood pressure --Psychological dependence, but physical dependence does not develop --Tolerance through continued use In large doses these drugs may be lethal. LSD and psilocybin are presently classified by the Food and Drug Administration as experimental drugs which may be distributed only to qualified investigators who will use them in approved programs of experimentation. At the present time, these drugs appear to be of minor importance in the drug abuse program because of cost and lack of availability.	Text and Library Books
Acetylsalicylic Acid	Discuss some of the medical uses of aspirin and of similar analgesic agents which contain acetylsalicylic acid. Point out that over 15 billion aspirin tablets (27.2 million pounds) are consumed by Americans each year. List some of the precautions which should be exercised with these drugs. Point out the number of cases of acetylsalicylic acid poisoning among small children. The ingestion of large doses of this drug may cause: 1. Severe irritation of the gastro-intestinal tract characterized by vomiting, nausea, diarrhea, and sometimes by gastric hemorrhages 2. Profuse perspiration 3. Severe thirst 4. Dehydration 5. Delirium, hallucinations, convulsions, and coma (severe cases)	"Aspirin," Scientific American, 209 (November, 1963), 96-101.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Acetylsalicylic Acid	6. Dilation of the pupils 7. Decrease in blood pressure 8. Increase in respiration (fast and deep). Death may result from respiratory paralysis or circulatory failure 9. Allergic reaction to persons who are sensitive to the drug	Text and Library Books
Sodium Bromide	Report that many headache remedies and "nerve medicines" that require no prescription contain sodium bromide. This drug acts as a sedative and is habit-forming. Overdoses may result in bromide intoxication and the accumulative effects from prolonged misuse may cause severe bromide poisoning. The symptons of bromide misuse include: -- Restlessness -- Headaches -- Insomnia -- Depression -- Loss of memory for recent events -- Hallucinations -- Slow, thick speech -- Uncoordinated movements -- Blurred vision -- Sallow complexion and skin rash -- Cyanotic appearance -- Loss of appetite	Von Oettinger, W.F. Poisoning, A Guide to Clinical Diagnosis and Treatment. Philadelphia: W.B.Saunders, 1958. p. 289. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Science Research Associates, 1967. pp. 15-16.
Antihistamines	Ask the class to suggest several uses of the antihistamine drugs. They are used for relief of nasal congestion due to colds, to combat allergies, and to induce sleep. They also cause side effects, such as inattentiveness, confusion, and drowsiness. Discuss some of the precautions that should be taken with antihistamine drugs. Ask a student to report the kind of information which appears on the label of a histamine	Drugs and Driving. (U. S. Government Printing Office, Washington 25, D.C.). pp. 1-8.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Antihistamines (cont.) Other Noxious Chemical Substances	preparation. Discuss some of the precautionary measures that should be taken to prevent the inhalation or ingestion of common substances which are potentially dangerous. Request the class to develop an educational plan for alerting elementary and junior high school pupils to the dangers of glue sniffing. Point out that some of the noxious chemical substances that are contained in glues, cements, and other household substances. These include hexane, benzene, toluene, xylene, carbon tetrachloride, chloroform, ethylene dichloride, ethyl and isopropyl alcohols, and various ketones, esters, and ethers. Inhalation or ingestion of high concentrations of one or another of these substances may produce: 1. Sensations resembling acute intoxication, followed by drowsiness, stupor, and unconsciousness 2. Irritation of the mucous membrane, skin, and respiratory tract 3. Stimulation and depression of the central nervous system 4. Reduction of bone marrow function leading to a number of blood abnormalities 5. Blindness and paralysis caused by nerve damage Report that blindness, paralysis, and other abnormalities have resulted from the abuse of such substances as radiator antifreeze, contaminated Jamaican ginger, missile propellant, hair tonics, and nutmeg.	Text and Library Books Von Oettinger, W. F. Poisoning, A Guide to Clinical Diagnosis and Treatment. Philadelphia: W. B. Saunders, 1958. 627 pp. "Glue-Sniffing: An Adolescent Craze That Is Not Amusing," Consumer Reports (January, 1963), 40. Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). p. 289.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Abuse of Drugs as an Individual and a Community Problem	Hold a panel discussion on "Teenage Abuse of Drugs." Point out that drug abuse in school age youth has been recognized as a complex psychosocial problem. It affects all segments of the population, including the affluent as well as the disadvantaged. Report that: The Los Angeles Police Department's juvenile narcotic unit arrests some 7,000 juveniles a year on various narcotic charges. The most alarming development is the sharply increasing use of the dangerous drugs, namely barbiturates and amphetamines. Analyze with students the reasons why some people resort to misuse of narcotic and dangerous drugs. Emphasize that these drugs are essentially "reality modifiers"; they provide a temporary escape from personal problems and create a false sense of well-being by dulling or distorting sensory perception. Report that: Many persons who abuse drugs have been generally characterized as inadequate or psychopathic personalities, with low frustration tolerance. They need continued reassurance in any threatening situation, and seek to avoid stress. Escape to the world of fantasy by means of drug abuse is clearly one way of avoiding the demands of a taxing environment. They have been described as childish, hedonistic, and unable to postpone immediate gratification in favor of a long-term goal.[1]	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Drug Addiction. Chicago: Science Research Associates, 1961. pp. 7-10. Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.) pp. 293-301. U. S. Treasury Department, Bureau of Narcotics. Prevention and Control of Narcotic Addiction. (U. S. Government Printing Office, Washington 25, D.C.). pp. 26-31. State of California Department of the Youth Authority. Use of Dangerous Drugs by Juveniles in California. Sacramento: California State Printing Office, 1963. pp. 7-15.

[1]Ibid., p.293

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Abuse of Drugs as an Individual and a Community Problem (cont.)	Many young people are led to addiction by a friend. More than 90 per cent of the addicts testifying before a legislative committee reported that they began using drugs because of "friends" and "associates." Some young people experiment with drugs "to seek thrills," or "to try anything once." Present statistics to illustrate the annual cost of drug abuse to the individual and to the community. Authorities estimate that the addict needs about 30 to 60 dollars a day or about 10,000 dollars a year to support his habit. Since only a small proportion of the estimated 180,000 addicts are able to support the drug habit, each of the remaining individuals must steal at least 50,000 dollars worth of goods annually in order to realize 10,000 dollars. Analyze other costs to the community resulting from the drug abuse problem, such as those for law enforcement, the maintenance and supervised parole of drug violators, and for treatment centers and rehabilitation programs. Appoint a panel to report some of the problems which face the drug addict. Emphasize that: Most drug addicts demonstrate a helplessness to deal with their life situations either with or without the drug. Many are school dropouts from socially deprived areas. They have little or no vocational skills. Addiction renders them incapable of working efficiently at any job. When rehabilitated, the addict is often not accepted by former friends and associates. He finds a scarcity of job opportunities.	Text and Library Books Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 30-48. "Drug Addiction: A Review," The Journal of School Health, 34 (February, 1964), 77-87. Winick, Charles. The Narcotic Addiction Problem. New York: American Social Hygiene Association, 1962. 22 pp. Modern Health. pp. 161-162. Health and Safety for You. pp. 176-177.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Law Enforcement in the Abuse of Drugs	Assign students to write a brief report summarizing the existing community programs for the prevention of drug abuse. Assign a committee to investigate the extent to which drug abuse is a problem of local law enforcement. Emphasize that: Drug abuse leads to antisocial behavior because the addict must resort to crime in order to obtain the large sums of money needed to support his habit. He violates the law whenever he obtains drugs on the illicit market or through theft and forgery Ask for a report on the work of the Narcotics Division of the Los Angeles City Police Department. What special training do police officers receive concerning narcotics?	Text and Library Books Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D.C.). pp. 67-128. Winick, Charles. The Narcotic Addiction Problem. New York: American Social Hygiene Association, 1962. 22 pp.
Treatment and Rehabilitation of Drug Misusers	Ask students to evaluate some of the current philosophies concerning the treatment and rehabilitation of the drug addict, such as the advisability of government controlled clinics for the dispensing of drugs to addicts, compulsory hospitalization of addicts, halfway houses to help the former addict to readjust gradually to society, and early parole of drug addicts. Ask for reports on the U. S. Public Health Service hospitals for the treatment of narcotic addicts. Discuss California's program for the rehabilitation of narcotic addicts. Following is a brief summary of this program:[1] The California Rehabilitation Center for Addicts was set up in 1962 under the administration of the State Department of Corrections. The program provides mandatory	"Drug Addiction: A Review," The Journal of School Health, 34 (February, 1964), 77-87. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 33-39. Modern Health. pp. 162-163.

[1] State of California Interdepartmental Committee on Narcotics, California Faces the Drug Abuse Problem. Sacramento: California State Printing Office, 1963. p.4.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Treatment and Rehabilitation of Drug Misusers (cont.)	periods of confinement with treatment for addicts and those in imminent danger of becoming addicts. The treatment consists of physical conditioning, counseling, group psychotherapy, individual psychiatric treatment, academic instruction, vocational training, and religious and other programs. The minimum is six months by law, up to 2½ years for those who volunteer for treatment, and for those convicted of misdemeanors and felonies, up to 7 years. There is close supervision on parole with chemical testing, use of outpatient treatment clinics, and experimentation with "halfway houses." California's first Halfway House for Narcotic Addicts was opened in Los Angeles in 1962.	Text and Library Books
	Point out that two testing methods are currently available to detect the use of drugs by a parolee. These are the Nalline test and the Urine Chromatography test. When administered hypodermically, the drug, nalline, will cause symptoms of withdrawal to occur, resulting from physical dependence to morphinelike drugs. For example, dilation of the pupils of the eyes occurs immediately following an injection of nalline into the vein of the person who has been using opiates. The second test involves a chemical analysis of the urine of the parolee to detect evidences of any drug that might be taken. This analysis usually takes several hours; however, traces of the use of any drug by a person can be detected.	Proceedings--White House Conference on Narcotic and Drug Abuse, September 27-28, 1962. (U. S. Government Printing Office, Washington 25, D. C.). p. 299
The High School Student and the Misuse of Drugs	Divide class members into committees and ask them to identify responsibilities of high school students in preventing the spread of drug habituation and addiction. Ask the groups to suggest measures, including needed legislation, to curb the problem of drug abuse. Discuss some of the problems concerning drug abuse that are encountered by teenagers and suggest ways for solving them.	Vogel, Victor, and Virginia Vogel. Facts About Drug Addiction. Chicago: Science Research Associates, 1961. 16 pp.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The High School Student and the Misuse of Drugs (cont.)	Identify parental responsibilities in the prevention of teenage drug abuse. Discuss ways for alerting parents and other adults to the dangers of drug abuse. Invite the school doctor to discuss the use and abuse of narcotic and habit-forming drugs.	Text and Library Books Winick, Charles. The Narcotic Addiction Problem. New York: American Social Hygiene Association, 1962. 22 pp. Vogel, Victor, and Virginia Vogel. Facts About Narcotics. Chicago: Science Research Associates, 1967. pp. 44-48.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES*

Drug, Narcotic Substance	Slang Term	Properties	Methods of Use	Effects
AMPHETAMINES Benzedrine Dexedrine Methedrine	Bennies, Dexies, Hearts Lid Proppers, Meth, Pep Pills, Speed, Uppers, Wake-Ups	Capsules or Tablets of various colors and in liquid form	Swallowed or injected (methamphetamine)	Dilated pupils; rapid speech; excitability; nervousness; sleeplessness; false sense of pep and mental alertness; habit-forming; tolerance through repeated use. Misuse may cause loss of mental powers, illness, or death.
BARBITURATES Amytal Luminal Nembutal Seconal Tuinal	Barbs, Blue Heavens, Candy, Downers, Peanuts, Phennies, Rainbows, Reds, Yellow Jackets	White powder sold in colored capsules	Swallowed or injected	Constricted pupils; slurred speech; symptoms similar to those caused by intoxication. Create addiction and painful withdrawal illness; user may become unconscious. Users in a groggy state may take fatal overdose. Chronic misuse of barbiturates may cause serious mental illness or death. Use with alcohol is frequently fatal.
COCAINE	Flake, Bernice, Coke Corrine, Gold Dust, Snow, Star Dust	Flaky, snowlike substance, resembling epsom salts or camphor. Sold in containers similar to those used for morphine or heroin	Usually sniffed because mucous membrane is especially responsive to the drug. May be injected	Excitability; tremors. Alleviates pain; constricts tissues; dilates pupils; creates euphoria. Is habit-forming; produces physical and mental deterioration (paranoid behavior with continued use).

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

Drug, Narcotic Substance	Slang Term	Properties	Methods of Use	Effects
HEROIN	H., Harry, Horse, Junk, Scag. Seat, Smack, Stuff	White powder resembling powdered sugar. Sold in capsules and other forms	Sniffed, or injected under skin or into vein.	Constricted pupils, water eyes running nose; drowsiness to stupor; chills, sweating on withdrawal. Physical and psychological dependencies are produced in brief period and are difficult to cure.
LSD	Acid, Big D, Cubes, Sugar, Trips	Liquid which is colorless, odorless, and tasteless. Available in capsules, tablets, or cubes	Swallowed	Dilated pupils, laughing-crying incoherent speech; optical and auditory hallucinations; psychological dependence; possible chromosomal damage as well as chronic brain damage and suicidal tendencies.
MARIJUANA	Gage, Grass, Pot Reefer, Roach, Tea, Weed	Leaves and flowers dried into grasslike form; rolled into paper cigarettes, folded in, or twisted at both ends. Strong odor of fresh-cut alfalfa hay	Smoked in cigarettes, pipes, or water pipes (hookah)	Reddening of eyes; talkative; laughter; euphoria; intoxication. Distortion of time and space perception. Large doses and chronic use may produce hallucinations and paranoia and result in lowered motivation and unpredictable behavior.

Drug, Narcotic Substance	Slang Term	Properties	Methods of Use	Effects
HASHISH	Hash	Resin from leaves of Far Eastern plant	Smoked in pipes or eaten	Effects similar to those of marijuana, but more extreme (hashish 7-10 times greater potency).
PEYOTE	Buttons	Mescaline from button-shaped growth; closely resembles mushrooms. After being plucked, mescale buttons are dried	Chewed and swallowed; ground and placed in capsules; boiled in water as tea	Dilated pupils; laughing-crying; incoherent speech; optical and auditory hallucinations; nausea, vomiting, cramps; tolerance through use.
VOLATILE CHEMICALS Aerosol products Airplane glue Freon Gasoline Paint thinner Plastic cement Toluene	Sock It	Fumes, gas or liquid	Inhaled through mouth	Dilated pupils; sneezing, coughing; chest pain; dizziness, vomiting; euphoria; psychological dependence; brain cell damage; cardiac arrest; lung damage caused from asphyxiation.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
ALCOHOL The Use of Alcohol in Our Society	Assign students to develop a timeline summarizing the various viewpoints which have been held toward the use of alcoholic beverages during various periods in history. Point out that Fermented beverages have been known to people in all parts of the world since prehistoric times. They were used for ritualistic purposes by the Sumerians, Egyptians, Greeks, and Romans. Since these drinks were found to be safer than the polluted waters which ordinarily were available, they often were used as a substitute for drinking water. Cautions against the misuse of alccholic beverages were expressed in statements such as "moderation in all things" and "nothing to excess." Historical accounts of the effects of fermented beverages on behavior are contained in the Bible. Buddha (about 600 B.C.), Confucius (551-578 B.C.), and Mohammed (about 570-632 A.D.) also spoke out against the dangers of inebriety The process of distillation was discovered by the Arabs during the height of their medieval civilization. The word alcohol comes from the Arabic term "alkohol," meaning "spirit". Alcohol beverages were brought to the New World by the settlers (Virginia Colony, 1607), and the use of these beverages became widespread. The first brewery was erected in 1637 in the Massachusetts Colony, and the manufacture of alcoholic beverages soon became a leading industry. The moderate use of alcohol was acceptable to the Puritans and other religious groups during this period. Westward expansion and the conditions caused by "frontier living," are cited by authorities as being at least	Text and Library Books McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 11-29. McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1967. pp. 7-12. Lucia, Salvatore P. Alcohol and Civilization. New York: McGraw-Hill, 1963. pp. 151-182.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Use of Alcohol in Our Society (cont.)	partially responsible for a rapid increase in excessive misuse of distilled liquors in the United States during the 18th and 19th centuries. Attempts to curb the increasing misuse of distilled beverages began in the 1750's with the forbiddance by certain religious groups of inebriety and of commerce in distilled alcoholic beverages. The temperance movement gained momentum during the next century. Organizations, such as the American Temperance Union (1826), the National Prohibition Party (1870), and the Women's Christian Temperance Union (1851) became actively engaged in effecting legislation pertaining to alcoholic beverages. From 1851 to the Civil War years, prohibition was legislated by 13 states. National prohibition became a reality with the enactment of the 18th Amendment to the Constitution in 1919. Prohibition remained in effect until 1933, when passage of the 21st Amendment revoked the 18th. Analyze the extent to which alcoholic beverages are used in our society today. Report that the consumption of absolute alcohol per capita during the last several decades has remained relatively unchanged at approximately 2 gallons of absolute alcohol per capita for persons over 15 years of age. (California's consumption rate in 1962 was 2.66 gallons. Ask a student to find out the consumer expenditures for alcoholic beverages (10.7 billion dollars, 1962). Compare this amount with expenditures for other items (food 73.6 billion dollars). Various surveys regarding the use of alcoholic beverages by the adult population show that approximately 1/3 report total abstinence 1/3 drink less than once a month 1/3 drink once a month or more. (It is estimated that about 1/6 of this group are alcoholics.)	Text and Library Books McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 125-139. "Planning for Alcohol Education," (California's Health, Vol. 18. Reprint). 3-6.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Use of Alcoholic Beverages as a Social Problem	Analyze with students some of the social problems that are attributable to the use of alcoholic beverages. Ask for special reports on the use of alcohol and its relationship to Traffic accidents Delinquency and crime Marital and family problems Economic losses to the community Point out that The use of alcohol is a factor in at least ½ of all traffic accidents. Persons who use alcohol excessively have a higher frequency of marital and family difficulties than nonusers. Excessive drinkers frequently are unable to find employment or to hold a job successfully. Law enforcement officers spend about 75 per cent of their time dealing with individuals who are excessive users of alcohol. These individuals have a higher arrest rate than nonusers. Surveys of prison inmates indicate that a large proportion have a history of excessive drinking and many were under the influence of alcohol when apprehended. Misuse of alcohol costs the taxpayers of the County of Los Angeles in excess of 73 million dollars a year in addition to the loss of jobs, broken homes, and impaired health suffered by the victims of alcoholism.[1]	Text and Library Books McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 147-189. Rice, Thurman, and Rolla Harger. Effects of Alcoholic Drinks, Tobacco, Sedatives, Narcotics. Evanston, Illinois: Harper and Row, 1962. pp. 169-175. Modern Health, p. 146. Health and Safety for You. p. 168.

[1] County Commission on Alcoholism, "Estimated Costs to Los Angeles County Attributable to the Use of Alcohol," Dorn Newsletter (March 31, 1964), 1-6.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
The Use of Alcoholic Beverages as a Social Problem (cont.)	Appoint several students to survey the newspapers for reported incidents in which the misuse of alcohol may have been an attributable factor.	Text and Library Books
Nature and Major Classes of Alcoholic Beverages	Point out that alcohol is a class of chemical substances which is made up of the elements of carbon, hydrogen, and oxygen in the general formula, $C_nH_{(2n+1)}$, to which an OH is attached. The simplest is methanol, or wood alcohol (CH_3OH), which is made from the distillation of wood. This substance is extremely toxic when taken internally and may cause blindness or death. It is sometimes mixed with ethyl alcohol to form denatured alcohol. The kind that is used in alcoholic beverages is ethyl alcohol, or ethanol (C_2H_5OH). It is a colorless, inflammable liquid which has a wide variety of laboratory and industrial uses: 1. As an organic solvent 2. In drug, cosmetic, and chemical preparations 3. As a preservative Explain that almost all ethyl alcohol is made through the process of fermentation, a chemical change which is brought about by the action of yeast micro-organisms on sugar-containing solutions at room temperature. Bubbles of carbon dioxide are set free, causing the formation of ethyl alcohol. When the alcoholic content reaches approximately 12 to 14 per cent, the micro-organisms become inactive and fermentation stops. This chemical process may be expressed by the following formula: $C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2$ Compare the alcoholic content of the three most common classes of alcoholic beverages. Point out that beer contains about 1/10 and wine about 3/10 as much alcohol by volume as distilled	McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1951. pp. 17-22. McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 69-76. Rice, Thurman, and Rolla Harger. Effects of Alcoholic Drinks, Tobacco, Sedatives, Narcotics. Evanston, Illinois: Harper and Row, 1962. pp. 49-59. Modern Health. pp. 146-147. Health and Safety for You. p. 169.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Nature and Major Classes of Alcoholic Beverages (cont.)	liquor. (a 12-ounce container of beer contains about the same amount of alcohol as 1 ounce of 100-proof liquor.) Explain that Beer is produced from the fermentation of malted grain. Diastase, an enzyme, contained in the malt is responsible for converting the grain starches to sugar (maltose) so that fermentation can occur. The alcoholic content of beer is approximately 4 per cent. Wine is produced from the fermentation of plant and fruit juices and may vary in alcoholic content from approximately 10 to as much as 25 per cent. Wines containing alcohol above the levels of 12 to 14 per cent have been "fortified" by the use of additional alcohol. Distilled, or hard, liquors (whiskey, gin, brandy, and rum) have a much higher content of alcohol than either beer or wine. The alcoholic content of these substances is approximately 40 to 50 per cent, or 80 to 90 proof. (The term proof is equal to twice the per cent of alcohol by volume.)	Text and Library Books Rice, Thurman, and Rolla Harger. Effects of Alcoholic Drinks, Tobacco, Sedatives, Narcotics. Evanston, Illinois. Harper and Row, 1962. pp. 49-59.
Alcohol and the Human Body	Use charts to illustrate the utilization of alcohol by the body. Point out that Alcohol requires no digestion. Immediately after swallowing, it is absorbed directly into the blood stream through the walls of the stomach (about 20 per cent) and small intestine (about 80 per cent). This action occurs very quickly; however, the rate of absorption may be slowed down by several factors, including the presence of food in the stomach. Alcohol is circulated throughout the body and diffuses into all tissue which contain water. Small amounts	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 77-81. Modern Health. pp. 147-149. Health and Safety for You. pp. 169-170.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Alcohol and the Human Body (cont.)	are eliminated by way of the lungs, sweat glands, and kidneys. The liver, which is the principal organ manufacturing the enzyme, alcohol dehydrogenase, is responsible for initiating the conversion of alcohol to carbon dioxide and water, the end products of oxidation. Hence, the disappearance rate of alcohol from the blood is dependent upon the liver; and black coffee, cold showers, and exercise are of no help in speeding this process. Following is the equation for alcohol oxidation: $C_2H_5OH + 3O_2 = 2CO_2 + 3H_2O$ Compare the nutritive value of alcoholic beverages with that of other foods. Point out that alcohol is referred to as containing "empty" calories because it contains no vitamins, proteins, or minerals. There are about 7 calories per gram or about 80-100 calories per ounce of 50 per cent alcohol. A fifth of a gallon of distilled liquor is said to contain approximately 2,000 calories. Cite the physiological and psychological effects of alcohol. Emphasize that alcohol acts as a depressant on the central nervous system, affecting the highest levels of the brain, the cortical region, first. Generally, alcohol: 1. Produces a false sense of well being, or euphoria 2. Causes dilation of the peripheral blood vessels; this may result in ruddiness of the face and neck and may produce a sensation of warmth 3. Irritates the mucous membrane lining of the stomach, especially in concentrations above 20 per cent alcohol. 4. Distorts judgment 5. Weakens inhibitions (Affects self-control) 6. Slows reaction time	Text and Library Books "Planning for Alcohol Education," (California's Health, Vol. 18. Reprint). 10-11. Lucia, Salvatore P. Alcohol and Civilization. New York: McGraw-Hill, 1963. pp. 43-94. "Planning for Alcohol Education, "(California's Health, Vol. 18. Reprint). 10. McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 90-119. McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1967. pp. 19-29.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Alcohol and the Human Body (cont.)	7. Interferes with physical and mental performance 8. Impairs hearing and vision ("tunnel vision" - a narrowing of the field of vision) 9. Promotes carelessness 10. Impairs coordination 11. Lessens intellectual activity 12. Dulls memory 13. Alters liver function; a damaged or diseased liver is frequently the cause of death of the chronic alcoholic 14. Disrupts normal endocrine activity in excessive doses which in turn may affect the protein and carbohydrate metabolism and the mineral balance of the body 15. Causes unconsciousness or death in large or toxic doses Request students to write a brief report summarizing the effects of various amounts of alcohol on the body. Discuss the different types of instruments which are used to determine the percentage of alcohol in the blood of a person who may be intoxicated. Because alcohol is distributed throughout the organs and tissues of the body in amounts that are directly proportional to their water content, the concentration of alcohol in a sample of blood, urine, or exhaled (aveolar) air may be used as an index to estimate the percentage of alcohol in various parts of the body, including the brain. For example: The water content of urine is 25 per cent greater than that of blood; therefore, the urine:blood alcohol ratio is approximately 1.25:1.00. Blood plasma contains approximately 15 per cent more water than whole blood; therefore, the plasma:whole blood alcohol ratio is about 1.15:1.00. The aveolar air:blood alcohol ratio	Text and Library Books Rice, Thurman and Rolla Harger. Effects of Alcoholic Drink, Tobacco, Sedatives, Narcotics. Evanston, Illinois: Harper and Row, 1962. pp. 69-98. McCarthy Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 82-85. "Planning for Alcohol Education," (California's Health, Vol. 18. Reprint). 9-13.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Alcohol and the Human Body (cont.)	is about 1:2,100; therefore, 2,100 cubic centimeters of aveolar air possess an equivalent amount of alcohol, by weight, to 1 cubic centimeter of blood. Point out that body size is an important factor in determining blood alcohol levels. The smaller the individual, the less alcohol is required to reach a given blood alcohol level. Hence, young people usually are able to tolerate far less alcohol than adults. When the concentration of alcohol in the blood reaches a level: 1. Of 0.05 to 0.15 per cent (about 2-4 ounces of whiskey or 2-4 bottles of beer), most individuals show impairment of higher brain function 2. Of 0.15 per cent or above (about 6-8 ounces of whiskey or 6-8 bottles of beer), the individual is considered legally to be under the influence of intoxicating liquor 3. Of 0.3 per cent (about 1 pint of whiskey or 6 quarts of beer), the user becomes unaware of what is happening around him 4. Of 0.4 per cent (about 1½ pints of whiskey or 9 quarts of beer), complete unconsciousness is caused 5. Of 0.5 per cent or above (about 1 quart of whiskey), the individual's life is endangered because of paralysis of parts of the nervous system which control respiration	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Motivations Concerning the Use of Alcohol	Assign students to develop a list of factors which are responsible for adult use of alcoholic beverages. Then ask them to compile a second list which suggests reasons why approximately ¼ of the adult male population and ½ of the adult female population do not use these beverages. Analyze with students some of the motivational studies which have been conducted with animals concerning the use of alcohol. In one such study, a fear reaction was established in animals by subjecting them to electric shocks each time they attempted to open a feed box. When the animals were given alcohol, they disregarded all previous experience and immediately opened the box, an act which they had feared previously. Instruct students to collect liquor advertisements and to analyze some of the psychological techniques that are used to influence the reader. Appoint a committee to find out the existing policies concerning liquor advertising in the newspapers, over the radio, and on television. Assign each student to write a paper stating his views concerning the labeling of alcoholic beverages as dangerous drugs which modify behavior and which may be habit-forming.	Text and Library Books "Planning for Alcohol Education," (California's Health, Vol. 18. Reprint). 13-14. McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1967. pp. 30-34. Modern Health. pp. 151-152. Health and Safety for You. p. 170.
Alcoholism Effects	Point out that alcoholism is a complex chronic disorder which constitutes a major public health problem. This condition affects approximately 5 million Americans, or about 5 per cent of the adult population. About 20 per cent of admissions to mental hospitals in California are alcoholics. Alcoholism differs from inebriety in that the latter is by choice. However, alcoholism is the result of an uncontrollable urge or compulsion to drink. The alcoholic uses alcohol to such an extent that it interferes with and is detrimental to his physical and mental health as a functioning individual.	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 204-210.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects (cont.)	**Discuss some of the theories concerning the cause of alcoholism. Emphasize that the specific nature and cause of this condition are not known. Most authorities agree, however, that alcoholism is a complex sociomedical problem, having physiological, psychological, and sociological implications.** **Cite some of the effects of alcoholism on the individual. Enumerate some of the medical problems that are associated with alcoholism. These include:** **malnutrition, nervousness, fatigue, chronic indigestion, jaundice, cirrhosis of the liver, pancreatitis, alcoholic hallucinosis, delirium tremens, tuberculosis** **Ask class members to suggest some of the effects of alcoholism on families.** **Discuss the economic burden of alcoholism on the community Emphasize that alcoholism is "perhaps the only disease which causes its victims to show up more in police courts and jails than in hospitals."[1]**	Text and Library Books Rice, Thurman, and Rolla Harger. Effects of Alcoholic Drinks, Tobacco, Sedatives, Narcotics. Evanston, Illinois: Harper and Row, 1962. pp. 199-215. Modern Health. pp. 151-156. Health and Safety for You. pp. 171-174. McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1967. pp. 40-46. "Planning for Alcohol Education," (California's Health, Vol. 18. Reprint). 7-12.
Treatment and Rehabilitation	**Discuss the philosophy and goals of current programs for the treatment of alcoholism. Emphasize that treatment programs may involve nutritional therapy, medical and psychiatric treatment, individual and family counseling, and outpatient care.** **Ask class members to identify some of the current treatment**	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 191-295.

[1]County Commission on Alcoholism, "Estimated Costs to Los Angeles County Attributable to the Use of Alcohol," Dorn Newsletter (March 31, 1964), 6.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Treatment and Rehabilitation (cont.)	programs for the various aspects of alcoholism. To what extent are drugs, such as Antabuse, successful in helping the alcoholic to stop drinking?	Text and Library Books
	Appoint a committee to find out what treatment centers and rehabilitation programs are conducted by the health departments and by voluntary organizations, such as Alcoholics Anonymous and the Salvation Army. Request the committee to justify the need for community support of special hospitals, outpatient clinics, and halfway houses for alcoholics.	"Planning for Alcohol Education," (California's Health, Vol. 18. Reprint). 13-14.
	Ask for a report on the research activities of the Federal government and of other agencies in the prevention and treatment of alcoholism.	McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1967. pp. 41-46.
	Discuss the changing viewpoint of the public toward alcoholism.	
Alcohol Legislation	Identify and discuss pertinent California laws that pertain to alcohol and teenagers. For example, "legal age" and documentary evidence of majority; sales to minors; sales on public school grounds; purchase or consumption by minors; use of false or fraudulent written evidence of age by minors; possession by minors in public places.	Todd, Frances. Teaching About Alcohol. New York: McGraw-Hill, 1964. pp. 4-5.
Alcoholic Beverages and the High School Student	Appoint a student panel to identify and to discuss the factors which induce some teenagers to experiment with alcoholic beverages. Ask the committee to cite the risks involved in teenage drinking. Emphasize that	McCarthy, Raymond. Alcohol Education for Classroom and Community. New York: McGraw-Hill, 1964. pp. 32-47.
	Alcohol is a depressant drug which may be habit-forming and, in some cases, addiction-producing	McCarthy, Raymond. Facts About Alcohol. Chicago: Science Research Associates, 1967. pp. 47-48.
	Alcohol produces effects upon personality and behavior which cause the user to do things that he would not do under normal circumstances	

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Alcoholic Beverages and the High School Student (cont.)	Allow the class to submit written questions to the panel concerning teenage drinking. For example, "What should a boy or girl do if he or she is at a party where teenagers are drinking alcoholic beverages?" Ask the class to compile a list of common misconceptions about alcoholic beverages.	Text and Library Books Todd, Frances. Teaching About Alcohol. New York: McGraw-Hill, 1964. 230 pp. Modern Health. pp. 155-156. Health and Safety for You. p. 174.

UNIT IV

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
TOBACCO Developments in Tobacco Research	Assign students to prepare a brief historical overview of events in the controversy concerning the smoking of tobacco which eventually led to the Surgeon General's report on Smoking and Health. Following is a brief summary: 16th Century. Controversy concerning the effects of tobacco on health developed soon after its introduction into Europe by explorers returning from the New World. Jean Nicot, French ambassador to Portugal, for whom the tobacco plant (Nicotian tabacum) is named, extolled its medical value as a curative drug in 1565.[1] During the same era, smoking was condemned as a foul-smelling, loathsome custom, harmful to the brain and lungs. 17th and 18th Centuries. The habit of tobacco smoking became widespread among the men of Europe and America in spite of early opposition by the clergy, physicians, and the ruling heads of England, Russia, and Turkey. 19th Century. The first well-documented study on the effects of smoking on health was reported in 1859 by a French physician, M. Boisson.[2] Of 68 patients with cancer of the oral cavity (45 lip, 11 mouth, 7 tongue, 5 tonsil), he noted that 66 smoked pipes, 1 chewed tobacco, and 1 used tobacco in some other form. He observed also that cancer occurred more often among smokers of short-stemmed pipes than among those who smoked pipes with long stems. He	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington 25, D. C.). pp. 5-10. Brecher, Ruth, and Others. The Consumers Union Report on Smoking and the Public Interest. Mount Vernon, New York: The Consumers Union, 1963. pp. 122-130. Neuberger, Maurine B. Smoke Screen - Tobacco and the Public Welfare. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963. pp. 51-99.

[1] "Effects of Smoking," Scientific American, 207 (July 1962) 39-51.

[2] Loc. cit.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Developments in Tobacco Research (cont.)	concluded that cancer resulted from irritation to the tissues by tobacco smoke and heat. Laymen who spoke out against smoking included Horace Mann, Horace Greeley, and Charles Dickens. 20th Century. Intensive research into the relationship between tobacco and health has been conducted during most of this century. --In 1900, statisticians noted an increase in the incidence of lung cancer which paralleled the increased use of tobacco, especially in the form of cigarettes. --After 1930, definite trends in death and disease rates among smokers and nonsmokers became more pronounced. Physicians began to note that nearly all their lung cancer patients smoked cigarettes. --In 1939, A. H. Roffo of Argentina produced the first experimental evidence of association of smoking with cancer.[1] By painting tarlike substances onto the backs of rabbits, he was able to produce cancer. --Since 1939, 29 studies have been completed which present evidence linking cigarette smoking to lung cancer. Evidence also indicates that smoking is hazardous to the cardiovascular system. --Between 1950 and 1960, a number of health organizations issued statements based on accumulated evidence, declaring that "smoking is an important health hazard particularly with respect to lung cancer and cardiovascular disease." These groups	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Services. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). pp. 5-10.

[1] "Effects of Smoking," Scientific American. 207 (July 1962) 39-51.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Developments in Tobacco Research (cont.)	included the British Medical Research Council; the cancer societies of Denmark, Norway, Sweden, Finland, and the Netherlands; the Canadian National Department of Health and Welfare; the American Cancer Society, the American Heart Association, and the National Tuberculosis Association. --In 1954, the Tobacco Industry Research Committee launched a research program into the question of tobacco and health. --Since 1956, the United States Public Health Service has been officially engaged in the appraisal of available data on smoking. Statements by the Surgeon General in 1957 and in 1959 implicated smoking as "a principal factor in the increased chance of developing lung cancer." --On June 1, 1961, a letter was sent to the President of the United States urging the formation of a Presidential commission to study the "widespread implications of the tobacco problem." This letter was signed by the presidents of the American Cancer Society, the American Public Health Association, the American Heart Association, and the National Tuberculosis Association. --On July 24, 1962, an expert committee was established by the Surgeon General, and this action was approved by the President of the United States. It was the opinion of this committee that "cigarette smoking contributes substantially to mortality from certain specific diseases and to the overall death rate." Ask for a committee to report the kinds of studies that were used as evidence for reports that smoking and other tobacco uses are injurious to health. Point out that the three	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Developments in Tobacco Research (cont.)	following kinds of scientific evidence were used:[1] 1. Animal studies. Exposure of animals to tobacco smoke and tars and to the various chemical compounds they contain. Seven of these compounds have been established as cancer-producing. Other substances in tobacco and smoke, though not carcinogenic themselves, promote cancer production or lower the threshold to a known carcinogen. Several toxic or irritant gases contained in tobacco smoke produce experimentally the kinds of non-cancerous damage seen in the tissues and cells of heavy smokers. This includes suppression of ciliary action that normally cleanses the trachea and bronchi, damage to the lung air sacs, and to mucous glands and goblet cells which produce mucous. 2. Clinical and autopsy studies. Observations of thousands of patients and autopsy studies of smokers and nonsmokers show that many kinds of damage to body functions and to organs, cells, and tissues occur more frequently and severely in smokers. Three kinds of cellular changes--loss of ciliated cells, thickening, and presence of atypical cells--are much more common in the lining layer (epithelium) of the trachea and bronchi of cigarette smokers than of nonsmokers. 3. Population studies. Another kind of evidence comes from two types of epidemiological studies. In [1]U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington 25, D. C.). pp. 26-29.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.) pp. 25-40.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Developments in Tobacco Research (cont.)	retrospective studies, the smoking histories of persons with a specified disease (for example, lung cancer) are compared with those of appropriate control groups without the disease. All but 1 of the 29 retrospective studies showed that proportionately more cigarette smokers are found among the lung cancer patients than in the control populations without lung cancer. The 7 prospective studies in which groups of healthy smokers and nonsmokers were followed for a specified period showed that the death rate for cigarette smokers was nearly 70 per cent higher than for nonsmokers. The greater the number of cigarettes smoked daily, the higher the death rate. Men who began smoking before age 20 have a substantially higher death rate than do those who began after 25.	Text and Library Books
Constituents of Tobacco Smoke	Describe the composition of tobacco smoke. Point out that tobacco smoke is made up of about 270 different substances in the form of 1. Various gaseous constituents (about 60 per cent of total tobacco smoke) containing numerous substances, several of which are capable of inhibiting the action of the ciliated cells of the trachea and bronchi.[1] These gases include carbon monoxide, carbon dioxide, methane, acrolein, methanol, acetone, ammonia, nitrogen dioxide, methyl nitrate, hydrogen sulfide, hydrogen cyanide, and methyl chloride.	U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). pp. 49-75. "The Effects of Smoking," Scientific American, 207 (July 1962), 39-51.

[1] U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington 25, D. C.). pp. 60-61.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Constituents of Tobacco Smoke (cont.)	2. Numerous particulate constituents (the yellow-brown condensate known as tobacco tar) containing many substances, at least 7 of which are carcinogenic. Benzo(a)pyrene, the most potent of the 7 carcinogens detected in tobacco smoke, is present in much larger quantities than any of the other carcinogenic substances.[1] Inorganic chemicals, such as arsenic, potassium, and the radioisotope, Polonium-210 (Po-210) are also contained in tobacco smoke. The estimated radiation dose for a person who smokes 2 packs of cigarettes a day for a 25-year period is about 7 times the normal background exposure.	Text and Library Books "Polonium-210 in Cigarette Smoke Suggested as a Co-Carcinogen," Medical Bulletin on Tobacco, 2 (Winter, 1964), 3.
	3. Another constituent of tobacco smoke is the highly toxic, habit-forming substance, nicotine. The predominant actions of this substance are stimulation and/or depression of the central nervous system which may vary with the individual, abnormally rapid or deep breathing, constriction of the peripheral blood vessels usually associated with a rise in systolic pressure, suppression of appetite, stimulation of peristalsis, and, with larger doses, nausea which may be associated with vomiting.[2]	Brecher, Ruth, and Others. The Consumers Union Report on Smoking and the Public Interest. Mount Vernon, New York: The Consumers Union, 1963. pp. 13-102.
	Display illustrations and photographs of various apparatus (smoking machines) which have been used to collect the residues of tobacco smoke. Discuss the purposes and uses of these devices in tobacco research. A number of devices may be set up to collect the tar-like products of tobacco smoke. Using	

[1] U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health (U. S. Government Printing Office, Washington 25, D. C.). pp. 57.

[2] Ibid., pp. 74-75.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Constituents of Tobacco Smoke (cont.)	several brands of filter and nonfilter cigarettes, comparisons can be made of the amount of residue that is collected from each. In Figure 1, a vacuum is created by siphoning water from the large flask. A coiled glass tube holding the tip of a cigarette is attached to the pint-sized flask by means of a 2-hole stopper. The amount of residue that collects in the coiled tubing may be used to approximate the tar content of several cigarettes of the same brand. Be sure to clean the tube after each test and to discard cigarettes safely by extinguishing them in water. Ask the class to note the odor and color of the water in the small flask and to observe the residue on the inside walls. How may these observations be likened to the linings of the respiratory tract of a person who smokes?	Text and Library Books

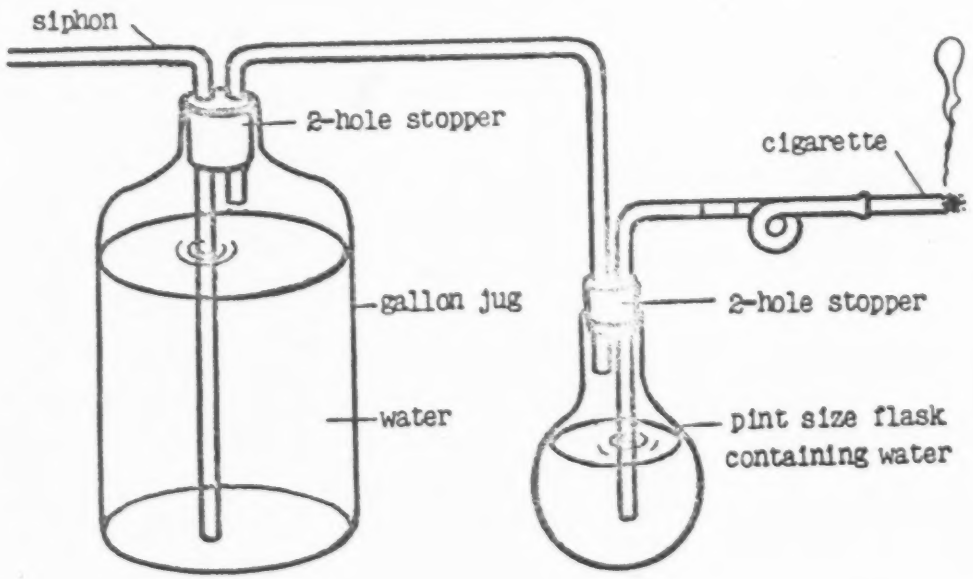


Figure 1

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Constituents of Tobacco Smoke (cont.)	In Figure 2, a Buchner filter funnel attached to a vacuum pump is used to collect tar residues from cigarette smoke by passing it through filter paper. First moisten the filter paper and place it in the funnel. Then, in a small hole in the plastic cover of the funnel, attach glass tubing to hold the cigarette, and seal the cover with grease. Use of a new filter paper each time makes possible comparison of the amount of residue collected from different brands of filter and nonfilter cigarettes.	Text and Library Books

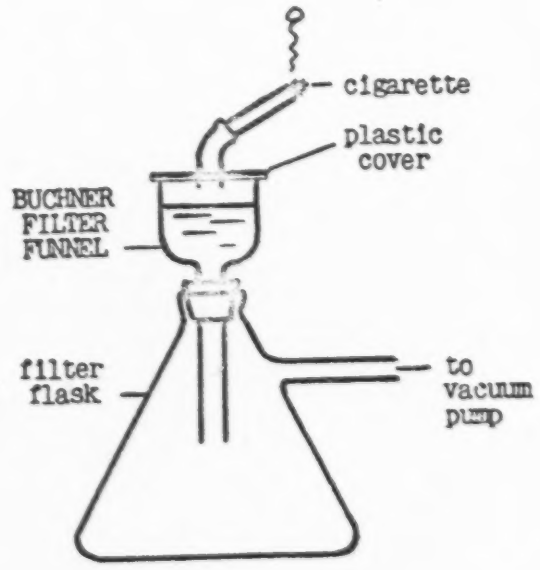


Figure 2.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects of Tobacco Smoke Constituents on the Human Body	Analyze with students statistical charts and graphs which indicate findings that smoking is linked with the increased rate of lung cancer and is associated with a number of other conditions, including circulatory, respiratory, and digestive disorders. Use charts to trace the areas of human tissue that are exposed through smoking to tobacco smoke constituents. Explain why cancer-producing tars are deposited on the delicate membrane linings of the air passages. Emphasize that tobacco smoke has been found to interfere with the cleansing action of the ciliary lining of the respiratory tract, thus allowing the accumulation of cancer-producing tars. Discuss the cellular changes in the ciliary lining of the respiratory tract of heavy smokers. Use visual aids such as the medical illustration which appears on page 183 to show some of the effects of smoking on the respiratory tract. Request students to summarize the pertinent conclusions that were reached by the Surgeon General's Advisory Committee concerning the effects of tobacco smoke on health. The following conclusions have been abstracted from the committee report:[1] Cancer of the Lung.[2] Cigarette smoking is causally related to lung cancer in men; the magnitude of the effects of cigarette smoking far outweighs all other factors. The data for women, though less extensive, point in the same direction. The risk of developing lung cancer increases	Text and Library Books Statistical Charts and Graphs are available from the American Cancer Society. "The Effects of Smoking," Scientific American, 207 (July 1962), pp. 39-51. U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). pp. 68-387.

[1] U. S. Department of Health, Education, and Welfare, Public Health Service, Smoking and Health (U. S. Government Printing Office, Washington 25, D. C.). pp. 1-387.

[2] Ibid., p. 196.

HOW CIGARETTE SMOKE DAMAGES THE BRONCHIAL TUBES

These are photomicrographs of tissue surgically removed from the bronchial tubes of a patient with chronic cough who was discovered to have lung cancer after years of cigarette smoking.

This shows a section of the bronchial tube lining that has not yet been damaged. The cells appear normal with their surfaces covered by hair-like projections, the cilia. These keep up a constant beating motion which carries mucous and foreign materials up the bronchial tubes and out of the lungs. Cigarette smoke stops the action of the cilia and eventually causes them to disappear.

169

In this section, almost all of the cilia have been destroyed. The only way mucous can be removed from this part of the lung is by coughing. The cell nuclei are also abnormal. Several are small and dark and appear to be paired. This is a pre-cancerous change. Further down the bronchial tract a cancer was found.

Photomicrographs courtesy of: C. R. Campbell, M.D.
Pathologist
Mills Memorial Hospital
San Mateo, California

Distributed through
California Interagency Council
on Cigarette Smoking and Health

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects of Tobacco Smoke Constituents on the Human Body (cont.)	with duration of smoking and the number of cigarettes smoked per day, and is diminished by discontinuing smoking. The risk of developing cancer of the lung for the combined group of pipe smokers, cigar smokers, and pipe and cigar smokers is greater than in nonsmokers, but much less than for cigarette smokers. The data are insufficient to warrant a conclusion for each group individually. Cancer of the Mouth.[1] The causal relationship of the smoking of pipes to the development of cancer of the lip appears to be established. Although there are suggestions of relationships between cancer of other specific sites of the oral cavity and the several forms of tobacco use, their causal implications cannot at present be stated. Cancer of the Larynx.[2] Evaluation of the evidence leads to the judgment that cigarette smoking is a significant factor in the causation of laryngeal cancer in the male. Cancer of the Esophagus.[3] The evidence of the tobacco-esophageal cancer relationship supports the belief that an association exists. However, the data are not adequate to decide whether the relationship is causal.	Text and Library Books

[1] U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). pp. 204-205.

[2] Ibid., p. 212

[3] Ibid., p. 218

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects of Tobacco Smoke Constituents on the Human Body (cont.)	Cancer of the Urinary Bladder.[1] Available data suggest an association between cigarette smoking and urinary bladder cancer in the male but are not sufficient to support a judgment on the causal significance of this association. Diseases of the Cardiovascular System.[2] Smoking and nicotine administration cause acute cardiovascular effects similar to those induced by stimulation of the autonomic nervous system, but these effects do not account well for the observed association between cigarette smoking and coronary disease. It is established that male cigarette smokers have a higher death rate from coronary disease than nonsmoking males. The association of smoking with other cardiovascular disorders is less well established. If cigarette smoking actually caused the higher death rate from coronary disease, it would on this account be responsible for many deaths of middle-aged and elderly males in the United States. Other factors such as high blood pressure, high serum cholesterol, and excessive obesity are also known to be associated with an unusually high death rate from coronary disease. The causative role of these factors in disease, though not proven, is suspected strongly enough to be a major reason for taking countermeasures against them. It is also more prudent to assume that the established association between cigarette smoking and coronary disease has causative meaning than to suspend judgment until no uncertainty remains. [1]U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). p. 225. [2]Ibid., p. 327.	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects of Tobacco Smoke Constituents on the Human Body (cont.)	Peptic Ulcers.[1] Epidemiological studies indicate an association between cigarette smoking and peptic ulcer which is greater for gastric than for duodenal ulcer. Maternal Smoking and Infant Birth Weight.[2] Women who smoke cigarettes during pregnancy tend to have babies of lower birth weight. Smoking and Accidents.[3] Smoking is associated with accidental deaths from fires in the home. Ask for a student to make a chart showing the average tar and nicotine content of filter and nonfilter cigarettes and of pipes and cigars.	Text and Library Books
Motivations Concerning the Use of Tobacco	Assign class members into committees and request them to list probable reasons why teenage boys and girls begin to smoke. Compare these lists with the findings of published research surveys on the reasons given by high school students for starting to smoke. To what extent are students influenced by the smoking habits of their parents, other adults, and teenage friends? Request students to interview a selected sample of adults to find out some of the reasons for smoking or not smoking. Ask	U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). pp. 361-387.

[1] U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U. S. Government Printing Office, Washington 25, D. C.). p. 340.

[2] Ibid., p. 343.

[3] Ibid., p. 345.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Motivations Concerning the Use of Tobacco (cont.)	the students to find out how many of the group who reported that they smoked say they would not have started if the facts about the harmful effects of tobacco smoke had been known to them at that time. Suggest that students construct charts of the findings to show the percentages of smokers and nonsmokers represented in the sample population, and the ages at which the majority who smoke began. Hold a panel discussion on the extent to which teenage students are influenced by tobacco advertisements. Ask the class to identify some of the psychological techniques that have been used to influence the smoking patterns of adult and teenage populations since 1900. What particular effects has advertising had on the smoking patterns of women? Assign each student to analyze an advertisement on smoking from a newspaper or magazine and to identify its "psychological appeal." To what age group is the advertisement directed? To what extent is the information it contains deceptive? Instruct a student to write to the various radio and television stations to inquire about their advertising codes and policies concerning tobacco products. Appoint a committee to find out how many radio and television programs that are sponsored by tobacco companies are directed to teenage and young adult audiences. Assign student committees to develop lists of appropriate protective actions which should be taken by federal, state, and local agencies to alert the public to health hazards of smoking. What actions have been taken thus far? To what extent are these actions successful? Discuss the actions	Text and Library Books Brecher, Ruth, and Others. The Consumers Union Report on Smoking and the Public Interest. Mount Vernon, New York: The Consumers Union, 1963. pp. 105-210. Neuberger, Maurine B. Smoke Screen - Tobacco and the Public Welfare. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963. pp. 100-136.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Motivations Concerning the Use of Tobacco (cont.)	that have been taken by other countries concerning smoking. These include: 1. Public education. 2. Enforcement of restriction of tobacco sales to minors. 3. Advertisement restrictions. 4. Wider restriction of smoking in public places. 5. Taxation. 6. Labeling of the amounts of carcinogenic and other harmful substances contained on the package. 7. Anti-smoking clinics. Ask for a report on the extent to which the use of tobacco is habituating. Appoint a student to report on the cigarette-withdrawal clinics that have been conducted by the health department. Ask for a volunteer to interview the school physician concerning the effectiveness of anti-smoking pills.	Text and Library Books Brecher, Ruth, and Others. The Consumers Union Report on Smoking and the Public Interest. Mount Vernon, New York: The Consumers Union, 1963. pp. 91-95, 212-215. U. S. Department of Health, Education, and Welfare, Public Health Service. Smoking and Health. (U.S. Government Printing Office, Washington 25, D. C.). pp. 361-387.
Economic Factors Related to Tobacco Expenditures	Present an authoritative estimate of the amount of money that Americans spend on tobacco. Point out that in 1962 approximately half the adult population in the United States smoked an average of 1 pack a day, or about 7 billion dollars' worth of tobacco products.[1] How does this amount compare with total consumer expenditures for other goods and services?	Brecher, Ruth, and Others. The Consumers Union Report on Smoking and the Public Interest. Mount Vernon, New York: The Consumers Union, 1963. pp. 105-160.

[1] Ruth Brecher and Others. The Consumers Union Report on Smoking and the Public Interest. (Mount Vernon, New York: The Consumers Union, 1963). p. 106.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Expenditures (cont.)	Request students to estimate the amount of money that is spent on tobacco per year by a person who smokes 1 package of cigarettes per day. Ask students to suggest several useful items which could have been purchased with that sum. What would be the total expenditure for tobacco at the end of 20 years? Discuss other personal and family expenditures which may result from smoking, such as repair costs for damage from holes burned in clothing, bedding, and furniture; costs of medical care for illness caused or aggravated by smoking; and working days lost due to illness, causing loss of income. Ask a student to report to the class the estimated loss of human life and property from fires which may have been caused by the carelessness of cigarette smokers. It is estimated that cigarette smokers through carelessness cause 90,000 fires a year, as compared with arsonists, who cause about 5,000.	Text and Library Books Neuberger, Maurine B. Smoke Screen - Tobacco and the Public Welfare. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963. pp. 67-99.
Tobacco and the Economy	Appoint a student committee to study and report to the class some of the ways in which curtailment of the use of tobacco may affect the national economy and that of states in which tobacco production is a principal industry. According to the Consumers Union Report on Smoking:[1] Approximately 6 million people are involved to some extent in the production and distribution of tobacco	

[1] Ruth Brecher and Others, The Consumers Union Report on Smoking and the Public Interest. (Mount Vernon, New York: The Consumers Union, 1963), p. 136.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Tobacco and the Economy (cont.)	products. The cigarette industry employs about 40,000 persons and about 3 million receive a large portion of their income from retail sales. About 700,000 farm families grow tobacco as a principal cash crop. Tobacco is an important product of export. About 207 million dollars are spent yearly to promote the sale of tobacco products.[1] Ask the class to react to some of the solutions that have been suggested for overcoming the economic problems resulting from the curtailment of tobacco products. Discuss the extent to which the curtailment of tobacco products and the taxes derived from them may affect tax revenues. What portions of the total cost of a package of cigarettes are allocated to federal, state, and city taxes? Ask the class to suggest ways for overcoming these revenue losses. Assign each student to write a theme suggesting the actions he thinks the government should take to curtail the use of tobacco products and to defend each suggested action. Ask several students to read their papers to the class. Suggest that the class write a letter stating its views to the Congressman of the District.	Text and Library Books
Tobacco and the High School Student	Ask the class to suggest several reasons why cigarette advertising is directed to high school students.	Modern Health. pp. 166-168.

[1] Ruth Brecher and Others. The Consumers Union Report on Smoking and the Public Interest. (Mount Vernon, New York: The Consumers Union, 1963), p. 162.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Tobacco and the High School Student (cont.)	Appoint a student panel to discuss arguments for and against smoking. Request each class member to develop a list of facts about smoking that high school students should consider. Divide the class into committees and request each group to develop an anti-smoking campaign that could be directed to teenagers. Submit these plans to the student council for use in a school-wide campaign. Request committees to develop radio commercials that are directed toward helping teenagers to make intelligent decisions concerning smoking. Arrange for the use of the tape recorder, and allow students to record their commercials for presentation to the class. Discuss parental attitudes toward smoking by teenagers. Ask for a report on the extent to which existing tobacco legislation is effective in restricting smoking by teenagers.	Text and Library Books Health and Safety for You. pp. 164-168. "Cigarette Smoking and Health, Part III: A Proposal for Action in California," California's Health, 21 (October 1, 1963), pp. 49-54.

III. EVALUATION

Evaluation of student progress in achieving the stated purposes of this unit may be determined in a variety of ways, including:

A. Tests and Inventories

1. Points of View and Beliefs Concerning the Use of Harmful Substances. Students are asked to react to the problems associated with the misuse of narcotic and other dangerous drugs.
2. Analyses of Misconceptions and Misleading Information. Students are asked to identify and to refute misinformation concerning harmful substances.
3. Application of Principles. Questions of the "What would you do?" type are asked to test the ability of students to make intelligent decisions concerning the use of narcotics, alcohol, tobacco, and other harmful substances.
4. Sentence Completion Test. Students are instructed to complete statements such as the following: "Probably the best response when offered an alcoholic beverage is _____."
5. Identification of Reliable Source of Information. Students are requested to identify reliable sources of information on questions pertaining to addicting and habit-forming substances.
6. Checklists. Students are offered lists of typical problems and concerns pertaining to situations involving the misuse of harmful substances. They are requested to identify those problems which are of personal concern.

B. Classwork Performance

1. Participation in Panel Discussions and Group Work.
2. Preparation of Oral and Written Reports.

PROGRESS IN PUBLIC HEALTH

209

UNIT V

PROGRESS IN PUBLIC HEALTH

I. SCOPE OF THE UNIT

Modern technology and research have enabled mankind to attain advanced health standards that were heretofore unrealized by any generation. Yet, as man progresses toward the solution of the age-old diseases that have plagued him for centuries, he is challenged continuously to find ways of coping with new health hazards typical of a highly technological space age. New dimensions in disease control, air pollution, nuclear radiation, and the growing problem of maintaining a safe and adequate water supply are examples.

Today's citizen must have more than just a passing acquaintance with present-day health problems in order to make intelligent decisions concerning them. Therefore, this unit is directed toward helping the student to

Develop an awareness of public health problems as they relate to both the individual and the population as a whole.

Examine those programs which have been proposed to resolve these problems.

It is suggested that four or five weeks be allowed for the completion of this unit.

To keep within this time allotment, teachers are urged to select and to adapt from the wide range of activities suggested those experiences which best meet the capacities and interests of the class. The outline of course content, lists of suggested activities and reference materials, and an explanation of evaluation procedures appear on the following pages.

UNIT V

PROGRESS IN PUBLIC HEALTH

OUTLINE

A. ROLE OF PUBLIC HEALTH

1. History and Significance of the Public Health Movement
2. Major Achievements in Public Health
3. Scope of Present-Day Health Problems
4. Public Health Organizations
   a. Types of Health Agencies
   b. Scope of Activities
      (1) Official
         (a) Local
         (b) State
         (c) National
         (d) International
   c. Professional Organizations
   d. Voluntary Health Agencies

B. PREVENTION AND CONTROL OF DISEASE

1. Concept of Disease
2. Communicable Disease Control
   a. Overview of the Problem
   b. Disease-Producing Organisms
      (1) Types
      (2) Modes of Transmission
      (3) Effects on the Body
      (4) Destruction of Pathogens
   c. Respiratory Infections
   d. Venereal Diseases
      (1) Syphilis
      (2) Gonorrhea
      (3) Other Venereal Diseases
      (4) Community Programs for the Control of Venereal Disease
   e. Tuberculosis
   f. Hepatitis
   g. Infectious Mononucleosis
   h. Poliomyelitis
   i. Measles
   j. Other Communicable Diseases
3. Individual Protection Against Disease
   a. General Body Defenses
   b. Mechanisms of Immunity
      (1) Antigen-Antibody Reactions
      (2) Types of Immunity
      (3) Immunizations
   c. Advances in Chemotherapy and Antibiotics
4. Responsibilities in Disease Control
   a. Individual
   b. School
   c. Community
   d. Legal

UNIT V

PROGRESS IN PUBLIC HEALTH

OUTLINE

B. PREVENTION AND CONTROL OF DISEASE (cont.)

5. Chronic and Degenerative Diseases
   a. Overview of the Problem
   b. Diseases of the Cardiovascular System
      (1) Congenital Heart Defects
      (2) Rheumatic Heart Disease
      (3) Hypertension
      (4) Coronary Heart Disease
      (5) Cerebral Vascular Disease
      (6) Varicose Veins
   c. Kidney Disease
   d. Cancer
      (1) Cause
      (2) Prevention
      (3) Treatment
   e. Chronic Respiratory Diseases
   f. Allergic Reactions
   g. Diabetes Mellitus
      (1) Cause
      (2) Detection and Treatment
      (3) Research and Education

C. ENVIRONMENTAL HEALTH PROTECTION

1. Sanitation
   a. Milk Control
   b. Water Contamination
   c. Pest Control and the Use of Pesticides
2. Air Pollution
3. Radiation
   a. Sources
   b. Effects
   c. Control

D. FUTURE HEALTH CHALLENGES

1. Unsolved Health Problems
2. Solutions

E. HEALTH CAREERS

1. Existing
2. Projected

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
ROLE OF PUBLIC HEALTH	Discuss the term "public health." Identify the basic purposes of community health programs. Emphasize that: Public health is an organized, community effort aimed at the preventive, promotional, and rehabilitative aspects of both physical and mental health. Its activities are directed toward a solution of those problems which tend to shorten or to impair human life.	Text and Library Books Modern Health. p. 436. Van Avery, Peter. Public Health. New York. H. W. Wilson, 1959. pp. 3-30.
History and Significance of the Public Health Movement	Assign students to write a paragraph on the meaning of public health. Present an historical overview of the gradual progress that man has made in acquiring and applying scientific health knowledge toward a solution of the problems dealing with disease prevention and control, sanitation, and environment. --Trace the theories concerning the cause and spread of disease which prevailed during various historical periods. --Compare the methods of sanitation used by the ancient Hebrews, Greeks, and Romans with those used during the Middle Ages. --Contrast the views toward the human body that were held by the Greeks with the philosophy which prevailed during the Middle Ages. --Assign special reports on the biographies of significant leaders in the history of the health sciences. --List several factors which were responsible for the interest in health and human welfare which developed during the latter part of the 19th century. --Identify prominent leaders in the public health movement, such as Samuel Shattuck, Clifford Beers, and Edward Livingston Trudeau.	Encyclopedia Brittanica Calder, Ritchie. Wonderful World of Medicine. Garden City: Doubleday, 1959. pp. 1-46. Chart Metropolitan Life Insurance Company, "A Chart to Accompany Health Through the Ages."

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History and Significance of the Public Health Movement (cont.)	--Construct a time line on the chalkboard summarizing the dominant ideas and practices that prevailed from early times to the present century. For example: I. PERIOD OF PRIMITIVE PEOPLES (Before 3500 B. C.) A. Many persons believed that illness was caused by evil spirits. Cures were sought largely through attempts to placate or to drive away these spirits. B. Specific herbs were used in the treatment of certain disorders, and crude efforts at surgery were attempted. II. PERIOD OF THE ANCIENT CIVILIZATIONS (3500 B. C. to 400 A. D.) A. Egypt and Babylonia (3500 to 1150 B. C.) 1. Skill in the compounding of drugs and specialized surgical instruments was developed. 2. Methods of sanitation included construction of earth closets and public drainage pipes. Practices of personal hygiene received attention. B. Ancient Greece (1000 to 300 B. C.) 1. Physical as well as mental fitness was stressed. Physical education was a vital part of the educational program. 2. Hippocrates (460 to 355 B. C.) the	Text and Library Books Encyclopedia Americana

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History and Significance of the Public Health Movement (cont.)	father of medicine, introduced methods of science to the study of disease. He taught that each disease arises from a natural cause. C. Greco-Roman Era (300 B. C. to 400 A. D.) 1. Gains in surgical skill were achieved through experiences in treating wounded soldiers and gladiators. 2. Progress in public health sanitation reached new heights. Methods of sanitation included construction of aqueducts, public baths, and sewers. 3. Galen (131-201 A. D.), a Greek physician, compiled the medical information of his time in a manuscript that was used as a reference for approximately a thousand years. III. PERIOD OF THE MIDDLE AGES (500 to 1500) A. The quest for scientific knowledge in Europe lay dormant during the early Middle Ages (500 to 1000). Spiritual aspects of life were emphasized rather than the physical. As a consequence, little attention was given to practices of personal hygiene and sanitation and to the general improvement of daily living conditions. B. Scientific knowledge, preserved and enriched by the Mohammedans, reached Europe during the later Middle Ages (1100 to 1500). Included were the writings of Avicenna (980 to 1037), a noted physician, and other	Text and Library Books Encyclopedia Americana Encyclopedia Americana

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History and Significance of the Public Health Movement (cont.)	Eastern scholars. Medical schools began in the 11th and 12th centuries. From the 12th through the 15th centuries more than 750 hospitals were organized in monasteries. C. Quarantine practices were used to help control disease epidemics ("Black Death," Typhoid Fever). IV. PERIOD FROM THE 16TH TO THE 19TH CENTURY A. This period marked the rebirth and the advancement of the health sciences. The study of disease was aided greatly by the use of the microscope and through the development of the science of chemistry. B. In the United States, the Public Health Service* began in 1798 as the U. S. Marine Hospital to care for disabled seamen. C. By the close of the 19th century, measures for disease prevention included: 1. The production of artificial immunity. 2. The passage of sanitation laws. 3. The organization of health departments in large cities. V. THE 20TH CENTURY A. The most rapid advancements in the various	Text and Library Books Van Avery, Peter. Public Health. New York: H. W. Wilson, 1959. pp. 3-100.

*Renamed the U. S. Public Health Service in 1912.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
History and Significance of the Public Health Movement (cont.)	aspects of environmental health, in the numerous and expanding health sciences, and in the prevention and control of specific diseases have occurred during the 20th century. B. The beginning of this century also marked the growth of the health organization movement. International, national, state, and local health agencies were established and began to develop. Some of these organizations were: American Public Health Association (1872) American Medical Association (1877) American National Red Cross (1881) American Tuberculosis Association (1904) The Society for Mental Hygiene (1908) American Cancer Society (1913) National Safety Council (1913) National Society for Crippled Children (1921) Epidemic Commission of the League of Nations (1920) American Heart Association (1922)	Text and Library Books Van Avery, Peter. Public Health. New York. H. W. Wilson, 1959. pp. 3-100. Means, Richard. A History of Public Health Education in the United States. Philadelphia: Lea and Febiger, 1962. 412 pp.
Major Achievements in Public Health	Ask students to list at least ten major achievements in public health that have contributed to the continued increase in the average life span of man. Use charts and graphs to make comparisons of man's average life span during various periods of history. What was man's approximate average life span in rome some two thousand years ago and two hundred years ago in two New England states? What has his length of life been during recent years in the United States? (Refer to the chart below.)	Van Avery, Peter. Public Health. New York: H. W. Wilson, 1959. pp. 3-100. Modern Health. pp. 437-455.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Major Achievements in Public Health (cont.)	AVERAGE LENGTH OF HUMAN LIFE FROM ANCIENT TO MODERN TIMES[1] Period — Years Early Iron and Bronze Age (Greece) — 18.0 About 2000 Years Ago (Rome) — 22.0 Middle Ages (England) — 33.0 1687 (Breslau) — 33.5 Before 1789 (Mass. and N.H.) — 33.5 1838-1854 (England and Wales) — 40.9 1900-1902 (United States) — 49.2 1946 (United States) — 66.7 1963 (United States) — 70.0	Text and Library Books
	Assign special reports on the Nobel Prize winners in medicine and physiology.	Nagan, Peter S. Medical Almanac. Philadelphia: W. B. Saunders, 1961. pp. 457-479.
Scope of Present-Day Health Problems	Analyze health statistics and other pertinent data with students in an attempt to identify the scope of present-day health problems at the community, state, and national levels. Compare these problems with those which are encountered in other parts of the world. For example, malaria is no longer a major health problem in the United States; however, it is still a major problem in other parts of the world. Assign a student to interview the school physician, dentist, and nurse regarding urgent local health needs. Compare national health standards with similar figures for 1900.	U. S. Department of Health, Education, and Welfare, Public Health Service. Health and Vital Statistics (U. S. Government Printing Office, Washington 25, D. C.)

[1] Evelyn Morholt, Paul Brandwein, and Alexander Joseph, A Sourcebook for the Biographical Sciences (New York: Harcourt, Brace and Company, 1958), p. 9.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Scope of Present-Day Health Problems (cont.)	Discuss some of the ways in which environmental conditions may affect health. Ask students to develop a list of environmental health factors. Request them to place a C before those items which constitute a significant problem in this country, an N before those which are national, and an I before those which are international in nature.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Background of the Nation's Health (U. S. Government Printing Office, Washington 25, D. C.)
Public Health Organizations	Prepare an exhibit of bulletins and materials from national, state, and local health agencies.	
Types of Health Agencies	Ask students to cite several examples which illustrate how health organizations contribute to personal and community welfare. List on the chalkboard the three major types of health agencies: official, voluntary, and professional. Discuss the major differences among the three types, and cite the role of each.	Modern Health. pp. 438-456. Health and Safety for You. pp. 473-475.
Scope of Activities	Emphasize that the responsibility for community health is shared jointly by the local health department, the medical, dental, and allied professions, the hospitals, the schools, the voluntary health agencies, and the general public. Assign students to prepare a directory of the active community health agencies and to evaluate their activities in terms of the health needs of the community. For example, headings might consist of the following:	Welfare Information, Inc Directory of Health, Welfare, and Recreation Agencies in Los Angeles County.

Problem or Need	Services Available	Agency or Group Providing Service	Location

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Official Agencies **Local**	Request students to analyze the organizational structure of the health department as an official unit of the local government. Assign students to find out the following: How are the members of the Board of Health Commissioners selected? Who is the chief health officer? What qualifications are required for this position?	Text and Library Books City Charter of Los Angeles
	Appoint a special committee to obtain information from the Health Education Section of the Los Angeles Health Department regarding the scope of its activities and responsibilities. Compare the activities and services with those offered by the health departments of other cities and with the list of desirable minimum functions recommended by the American Public Health Association. This list includes the following: Vital Statistics Sanitation Communicable Disease Control Laboratory Services Maternal and Child Care Chronic Disease Control Health Education	Modern Health. pp. 438-444. Health and Safety for You. p. 473.
	Request the committee to indicate the jurisdiction and the location of the Los Angeles Health Department and of the district health department centers. Instruct them to make a list of the various health workers included on the staff.	Los Angeles County Health Department. History and Functions of the Los Angeles County Health Department.
	Obtain statistics from county department officers to show what proportion of tax money is spent on health.	
	Hold a panel discussion on the advantages and disadvantages of separate city and county health departments. What is the relationship of the health department to the school, to the State Department of Health, and to voluntary agencies?	Los Angeles County Health Department. Welcome. A brief, up-to-date listing of Los Angeles County health services available at local health centers.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
State	Ask students to analyze the organization of the California State Department of Public Health. Who is the state director of public health? Find out the names of members of the State Board of Health. Locate on a map the regional offices of the State Department of Health. Study its role and official responsibilities. Point out that responsibilities for the administration of direct services are delegated to the local health units; and that the State Department of Health has supervisory as well as direct responsibilities in certain situations involving intercounty and state-wide projects. The State Health Department advises, lends assistance, and coordinates the activities of health groups working at the state level. It also acts as intermediary between federal and local health agencies.	Text and Library Books Modern Health. p. 440.
	Ask for a volunteer to obtain a copy of the Annual Report of the California State Department of Public Health and to report the scope of activities conducted by this agency.	California State Department of Public Health. Annual Report (May be obtained from Los Angeles Regional Office).
	Discuss the health activities of other state agencies, such as the Department of Agriculture and the Department of Natural Resources.	
	Request students to find out the per capita expenditures for public health services in California. How does this amount compare with expenditures in other states? How much of this money is derived from local, state, private, and federal funds?	U. S. Department of Health, Education, and Welfare. Medical Care, Financing, and Utilization (U. S. Government Printing Office, Washington 25, D. C.).
National	Ask students, "What reference is made to health in the Preamble to the Constitution of the United States?" Discuss to what department of government the U. S. Public Health Service belongs. Point out that it is the oldest of the organizations which comprise the Department of Health, Education, and Welfare.	Van Avery, Peter. Public Health. New York: H. W. Wilson, 1959. p. 50.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
National (cont.)	Assign students to find out what functions are performed by the major units of the Public Health Service. To what extent is this agency engaged in the following? 1. Research and training 2. Medical and hospital services 3. Prevention and control of disease 4. Environmental health 5. Assistance to the states in the development of community health services	Text and Library Books Modern Health. pp. 444-447. Health and Safety for You. p. 473.
	Ask for a volunteer to consult a copy of the Annual Report of the U. S. Department of Health, Education, and Welfare and to outline the scope of health activities conducted by this agency. What other branches of government are engaged in public health activities?	U. S. Department of Health, Education, and Welfare. Annual Report (U. S. Government Printing Office, Washington 25, D. C.).
	Assign reports on the work of the National Institutes of Health, the research arm of the Public Health Service, and of the Public Health Service's Communicable Disease Center at Atlanta, Georgia, often referred to as "Medicine's F.B.I."	Van Avery, Peter. Public Health. New York: H. W. Wilson, 1959. pp. 54-67.
	Request students to make graphs showing federal expenditures for public health. Find out the number and amounts of federal grants received by California for research and public health services. What kinds of federal monies are available for the support of research, training, services, and other public health activities?	U. S. Department of Health, Education, and Welfare. Annual Report (U. S. Government Printing Office, Washington 25, D. C.).
International	Appoint a panel to report on programs for the promotion of international health. Identify some of the problems that are being dealt with through the assistance of the World Health Organization and the Pan American Health Organization. Discuss the history and significance of these organizations.	Health and Safety for You. pp. 475-476. Nagin, Peter S. Medical Almanac. Philadelphia: W. B. Saunders, 1961. pp. 88-91.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Professional Organizations	Point out that there are several organizations of professional health workers which promote public health, such as the American Medical Association, the American Dental Association, and the American Public Health Association. Enumerate some of the public health activities conducted by such organizations at the city, county, state, national, and international levels.	Text and Library Books Means, Richard. A History of Health Education in the United States. Philadelphia: Lea and Febiger, 1962. p. 401.
Voluntary Health Agencies	Ask students to list the voluntary health agencies which are active in the community and to enumerate their contributions. Discuss how such organizations were established. Cite several examples which illustrate how these agencies serve as resources in times of emergency. Ask each student to volunteer to visit an agency of his choice and to report his findings to the class. Develop with the class a list of guidelines and appropriate questions for use in these visits. Sample questions may include: 1. What is the history of the organization? 2. How is the organization supported? 3. What is the organizational structure? 4. What kinds of health workers are included on the staff? 5. What is the operating budget? 6. What are the purposes of the organization? 7. What specific contributions does this agency make to public health and welfare? Invite representatives of the various organizations to speak to the class on the functions and activities of their agencies. Several representatives could be invited to serve as panel members to discuss ways of meeting community health needs. Ask students to list the voluntary agencies that are supporting research in the health sciences.	Welfare Information Service, Inc. Directory of Health, Welfare, and Recreation Agencies in Los Angeles County. Pamphlets published by the various health organizations* Health and Safety for You. p. 475. *List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Voluntary Health Agencies (cont.)	Plan a panel discussion on the topic, "Individual Responsibilities in the Support of Voluntary Health Agencies." Discuss the problem of fund raising. Evaluate the amount of money raised in relation to the magnitude of the tasks which such agencies undertake. Why are voluntary health agencies referred to as "community health resources"?	Text and Library Books U. S. Department of Health, Education, and Welfare. Medical Care and Financing (U. S. Government Printing Office, Washington 25, D. C.). Modern Health. pp. 446-447.
	Find out if the community has a council for the coordination of health activities. Ask a student to report on the purposes and contributions of this coordinating body. Point out that the National Health Council coordinates health activities at the national level. Appoint a committee to keep a calendar of coming events that pertain to health, such as Community Health Week.	
224 PREVENTION AND CONTROL OF DISEASE Concept of Disease	Review and analyze the meaning of the term "disease." Discuss some of the ways in which diseases are classified. Distinguish between the following types of illnesses: Organic and Functional Acute and Chronic Communicable and Noncommunicable Request the class to cite examples of diseases which are usually referred to as Occupational Degenerative Deficiency Compare national health statistics for communicable and noncommunicable diseases. What trends can be observed from these data?	Health and Safety for You. pp. 22-23, 367. Modern Health. p. 447. U. S. Department of Health, Education, and Welfare. Health and Vital Statistics for the United States. (U. S. Government Printing Office, Washington 25, D. C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Communicable Disease Control Overview of the Problem	Compare health statistics regarding the leading communicable diseases in the community, the city, the state, and the nation. Request students to make graphs illustrating the proportion of California's leading diseases that were reported for the city and the community. Compare current statistics of the top ranking contagious diseases in California with the base year of 1962, when for the first time the venereal diseases (37,761) outranked respiratory streptococcal infections (37,024), measles (28,585), and mumps (11,510). Use charts to compare the incidence of leading communicable diseases among the general population with the incidence among various age groups. What are the leading communicable diseases for the 15-19 and 20-24 age groups? Appoint a committee to chart and maintain on the chalkboard a "Morbidity and Mortality Weekly Report." What trends can be noted by analyzing this kind of information? Ask the class to suggest several reasons why health departments compile, analyze, and publish statistical reports. Appoint a student to find out what kinds of information are compiled and reported by the school health office.	Text and Library Books Health and Safety for You. p. 449. "The Venereal Disease Problem--Reprint of Special Articles," Medical Tribune, (1963), 4. U. S. Department of Health, Education, and Welfare. Health and Vital Statistics for the United States. (U. S. Government Printing Office, Washington 25, D. C.).
Disease-Producing Organisms	List on the chalkboard and discuss the following definitions by the California State Department of Health concerning communicable disease: A communicable disease is an illness due to a specific infectious agent or its toxic products, arising through transmission of that agent or its products from reservoir to susceptible host, either directly as from an infected person or animal, or indirectly through the agency of an intermediate plant or animal host, a	Modern Health. pp. 402-407. Health and Safety for You. p. 440.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Disease-Producing Organisms (cont.)	vector, or the inanimate environment.[1] An infectious agent /is/ a micro-organism (bacterium, protozoan, helminth /parasitic worm/, spirochete, fungus, virus, or other) capable of producing infection, and under favorable circumstances of host and environment having the capacity to produce infectious disease.[2]	Text and Library Books
Types	Use prepared microscopic slides, charts, and other visual materials to present an overview of the various classes of infectious agents. Assign students to list examples of infectious diseases that are caused by different groups of organisms. A sample chart appears on the following pages.	Audio-Visual Materials Stained microscopic slides* Prepared specimen of parasitic worms* Microscope with an oil-immersion lens*

[1] California State Department of Health, A Manual for the Control of Communicable Diseases in California (1960).

[2] Ibid., p. 392.

*The above materials may be obtained through the school science department or from a biological supply house.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Types (cont.)		Text and Library Books Modern Health. pp. 402-407. Health and Safety for You. p. 440.

Type of Organism	Examples of Diseases Caused
Bacteria (one-celled organisms)	
Coccus (sphere-shaped)	
diplococci (appear in pairs)	pneumonia, gonorrhea
streptococci (appear in chains)	scarlet fever
staphylococci (appear in clusters)	boils and other skin infections
Bacillus (rod-shaped)	tuberculosis, tetanus
Spirillia (spiral-shaped)	cholera,
Fungi (simple, non-green plants, such as molds, blights, yeast, smuts)	ringworm, coccidiodmycosis (valley fever)
Viruses (smallest known pathogenic organisms; visible by means of the electron microscope; grow only in live tissue culture)	poliomyelitis chickenpox smallpox common cold yellow fever
Rickettsiae (vary in size between a bacterium and a virus; grow only in live tissue)	Rocky Mountain spotted fever, typhus
Protozoa (one-celled organisms, such as the amoeba and the plasmodium)	malaria, African sleeping sickness, amoebic dysentery

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Types (cont.)		Text and Library Books

Type of Organism	Examples of Diseases Caused
Metazoa (many-celled organisms--parasitic worms and insects, such as the itch mite)	hookworm, tapeworm, trichinosis, scabies

Point out there are also many harmless micro-organisms which are beneficial. For example, certain bacteria in the intestinal tract of man function in the synthesis of certain vitamins, such as Vitamin K. Molds are an important source of antibiotics, such as penicillin and aureomycin.

Modes of Transmission

Request students to prepare tables, charts, and diagrams illustrating the various modes by which pathogens travel from a source or reservoir to a new host.

Modern Health. pp. 407-419.

Health and Safety for You. pp. 453-467.

Differentiate between the terms "reservoir" and "source" of infection. Point out that reservoirs of infection may be

> Men, animals, plants, soil, or inanimate organic matter, in which an infectious agent lives and multiplies and depends primarily for survival, reproducing itself in such manner that it can be transmitted to a susceptible host. Man himself is the most frequent reservoir of the infectious agents pathogenic for man.[1]

Clarify the meaning of "source of infection" as

[1]California State Department of Health, A Manual for the Control of Communicable Diseases in California (1960), p.289.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Modes of Transmission (cont.)	The thing, person, object, or substance from which the infectious agent passes immediately into a host . . The source may be at any point in the chain of transmission, as vehicle, vector, intermediate animal host, or contaminated article; thus, contaminated water (typhoid), an infective mosquito (yellow fever), beef (tapeworm infection), or a toy (diphtheria). In each instance cited, the reservoir is an infected person.[1] Discuss the following terminology in relation to infections: 1. Communicable period. The time or times during which the infectious agent may be transferred directly or indirectly from an infected person to another, or from an infected animal to man.[2] 2. Contamination. The presence of an infectious agent on a body surface, or on an inanimate article or substance.[3] 3. Contact. Any person or animal known to have been in such association with an infected person or animal as to have had the opportunity of acquiring the infection.[4] Cite examples of illnesses that are transmitted through the following modes:[5]	Text and Library Books Modern Health, pp. 407-419. Health and Safety for You. pp. 453-469.

[1] Ibid., p. 392.
[2] Ibid., p. 389.
[3] Ibid., p. 390.
[4] Ibid., p. 390.
[5] Ibid., pp. 395-396.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Modes of Transmission (cont.)	1. Contact a. Direct Contact. Actual touching of the infected person or animal or other source of infection, as in kissing or other contiguous personal association. b. Indirect Contact. Touching of contaminated objects, such as toys, handkerchiefs, and /other articles/, with subsequent hand-to-mouth transfer of infective material; less commonly, transfer to abraided or intact skin or mucous membrane. c. Droplet Spread. The projection onto the conjunctivae and the face or into the nose or mouth of the spray emanating from an infected person during sneezing, coughing, singing, or talking. Such droplets usually travel no more than three feet from the source.	Text and Library Books
	2. Vehicle Water, food, milk, biological products to include serum and plasma, or any substance serving as an intermediate means by which an infectious agent is transported from a reservoir and introduced into a susceptible host through ingestion, through inoculation, or by deposit on /the/ skin or mucous membrane.	Modern Health. pp. 404-412. Health and Safety for You. pp. 461-462.
	3. Vector Arthropods or other invertebrates which transmit infection by inoculation into or through the skin or mucous membrane by biting, or by deposit of infective materials on the skin or on food or other objects. The vector may be infected itself (in this state termed infective) or may act only as a passive or mechanical carrier of the agent.	Modern Health. pp. 413-417. Health and Safety for You. pp. 462-466.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Modes of Transmission (cont.)	4. Air-Borne a. Droplet Nuclei. The inhalation of the small residues which result from evaporation of droplets /from sneezing and coughing/ and remain suspended in air of enclosed spaces for relatively long periods. Droplet nuclei also may be created purposely by a variety of atomizing devices, or accidentally in the course of many laboratory procedures. b. Dust. The inhalation or settling on body surfaces of coarser particles which may arise from contaminated floors, clothes, bedding, or other articles, or from soil, and which ordinarily remain suspended in the air for relatively short periods. Assign special committees to perform agar plate studies to illustrate various modes by which micro-organisms are transmitted. If facilities permit, ask the class to make stained smears from the different types of specimens collected, and to examine with an oil immersion objective. Ask the class to study the extent to which air-borne micro-organisms are present in different locations of the school. Instruct students to expose agar plates to the air for a period of 20 minutes in specified locations, such as the cafeteria, the health office, the classroom, the halls, and out-of-doors. Set aside two additional unexposed plates to serve as controls. Label, date, and incubate in a warm, dark place for two to five days. Observe and count colony formations. What relationship exists between colony count and room activity? Help students to learn the extent to which micro-organisms	Text and Library Books Modern Health. pp. 407-409. Health and Safety for You. pp. 454-460. Modern Health. p. 409. Health and Safety for You. pp. 454-460. "Microbiology in Introductory Biology," The American Biology Teacher, 22 (June, 1960), 376-377.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Modes of Transmission (cont.)	are spread by the hands and the lips, from various eating and drinking utensils, and from coughs and sneezes. Use sterile cotton swabs to collect specimens from the hands, the lips, and the utensils. The effects of allowing glasses to stand for varying periods of time before swabbing, as well as cleaning and sanitizing the glass in different ways, may also be pointed out. Be sure to set aside control plates for the exercises. Label, date, and incubate the plates for two to five days.	Text and Library Books
	Assign students to examine the extent to which microorganisms are present in "vehicles," such as water, milk, and soil. Use a wire loop to streak a labeled agar plate with a sample of milk. Repeat the process with water and soil. (First moisten the loop before dipping it into the sample of soil.) Consult a laboratory manual or similar reference for details concerning these exercises and for descriptions of additional activities in which similar substances are used.	Salle, A. J. Laboratory Manual on Fundamental Principles of Bacteriology. New York: McGraw-Hill, 1954. pp. 95-123.
	Assign students to prepare charts listing some of the diseases that are transmitted by contact or by airborne droplets.	
	List some of the diseases that may be transmitted by vehicles such as water, food, or blood serum. These headings are appropriate:	

Disease	Infectious Agent	Mode of Transmission

	Portray the effects of an epidemic, using sheets of paper which have been sprinkled with fluorescent tracing powder	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Modes of Transmission (cont.)	(pathogens) and an ultraviolet light. Divide the class into five groups. Distribute to group I sheets of paper which have been sprinkled with the powder and to the other groups sheets of ordinary paper. Make an assignment, and instruct the class members to use this paper as answer sheets. Near the end of the period, request students to exchange papers as follows: Groups 1 - 2 3 - 4 5 - 1 2 - 3 4 - 5 Allow the class members to correct the papers and to return them to their owners. Then use the ultraviolet light to show that powder (pathogens) has spread by means of contact and air circulation to the hands and faces, clothing, and desks of pupils. Caution students not to look directly into the ultraviolet light. Compare the degrees of "contamination" among the different groups. What group received the least amount? Why? Assign a student to report on the zoonoses, which are animal infections that may be transmitted to man. To what extent are such diseases a problem in the United States and in other countries of the world? List some of the vectors that carry zoonoses. For example:	Text and Library Books "Animal Infections and Diseases," Scientific American, 202 (May, 1960), 161-168.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Modes of Transmission (cont.)		Text and Library Books

Disease	Vector	Reservoir	Infective Agent
Encephalitis	Mosquito tick	Horses, wild animals, birds	Virus
Malaria	Anopheles mosquito	Monkey, man	Plasmodium
Typhus fever	Louse, flea, tick, mite	Man, dog, rat	Rickettsia
Rocky Mountain spotted fever	Tick	Tick, rabbits, field mice, dogs	Rickettsia
Tularemia	Fly, tick (also transmitted through handling of infected animal)	Wild animals and some domestic animals	Bacterium

Discuss the mode of transmission of rabies. What is the incidence of this disease? What is the Pasteur treatment?

RESOURCES

Modern Health. pp. 413-417.

Health and Safety for You. pp. 462-466.

234

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects on the Body	Trace the paths by which micro-organisms can gain entrance to the body through: 1. Nose or mouth and into the respiratory tract 2. Mouth and into the digestive tract 3. Breaks in the skin or through mucous membrane 4. Piercing the skin Discuss the significance of the incubation period for micro-organisms. This is the time interval between the infection of a susceptible person or animal by a pathogen and the appearance of signs or symptoms of the disease in question. Assign students the following problem to illustrate the rapidity with which micro-organisms reproduce under favorable conditions in sufficient numbers and virulence to overcome the resistance of the host. Approximately every half hour, a bacterium reproduces through the process of binary fission. Within 30 minutes, one bacterium splits and there are two. An hour later, the two have split and there are four, and so on. At this rate, how many bacteria would be present at the end of a 12 hour period? (16,777,216). List some of the effects of disease producing organisms on the body. Ask students to cite examples of infectious agents that may damage body tissue. For example, pathogenic organisms: 1. Produce toxins and other substances which diffuse into the blood stream and circulate throughout the body, causing fever, aches, and other effects. 2. Attack and damage body tissues, disrupting normal body functions.	Text and Library Books Modern Health. pp. 422-424. Health and Safety for You. pp. 440-442.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects on the Body (cont.)	poliomyelitis--nerve tissue valley fever--lung tissue tuberculosis--lung and other body tissue syphilis--almost any body tissue streptococcal infections--throat, kidney, heart, blood cells, and other body tissue trichinosis--muscle tissue Cite several debilitating conditions, such as rheumatic heart disease, paralysis, loss of hearing and vision, and loss of pulmonary function, that may result from infectious diseases. Appoint a committee to report the extent of disability resulting from infectious diseases. For example, instruct the committee to find out the number of school days lost by students in your school during the year as a result of infectious diseases. Ask the group to determine the number of work days which were also lost. Request the students to translate these figures into monetary values and to cite the economic losses to the individual, the family, the community, and the nation.	Text and Library Books Modern Health. pp. 422-424. Health and Safety for You. pp. 444-448.
	Differentiate between asepsis (pathogen free) and antisepsis (pathogen destruction.) Discuss the application of each in terms of disease prevention and control. Appoint a student to report the findings of recent studies with "germ-free" animals. How do these animals differ from those raised under normal environmental conditions?	"Germ-free Sanitary Engineering," American Journal of Public Health and The Nation's Health, 52 (February, 1962), 192-199.
	Antiseptics Disinfectants Direct sunlight Desiccation (drying out)	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Destruction of Pathogens (cont.)	Ultraviolet light rays Acids and alkalies Salt Drugs	Text and Library Books
	Test the effects on micro-organisms of various disinfectants such as iodine, boric acid, hydrogen peroxide, lysol, commercial mouth washes. Expose agar slants or plates to a contamination. Then pour the substance to be tested over the agar slant or plate and label. Be sure to set aside an additional culture to which no substance has been added for control. Incubate at 37° (body temperature) Centigrade. Examine and record the results after 24, 48, and 72 hours. The same technique may be used to show the effects on micro-organisms of exposure to ultraviolet light rays and to temperature.	"Microbiology in Introductory Biology," The American Biology Teacher, 22 (June, 1960), 376-385.
Respiratory Infections	Point out that infections of the upper respiratory tract are responsible for more time lost from work and other productive pursuits than any other group of illnesses. An estimated incidence of one billion respiratory infections and an economic loss of approximately five billion dollars occur each year. These infections include the common cold, influenza, bronchitis, laryngitis, sinusitis, and the pneumonias.	Pamphlets*
	Assign a student to investigate the number of school absences which occurred during the past year because of respiratory infections. During which months did the greatest number of absences occur? Ask the student to suggest reasons for his findings.	Modern Health. pp. 353-356. Health and Safety for You. pp. 309-310, 455-460.
	Ask the class members to list the infectious agents that are	*List of Approved Free Supplementary Materials: Secondary.

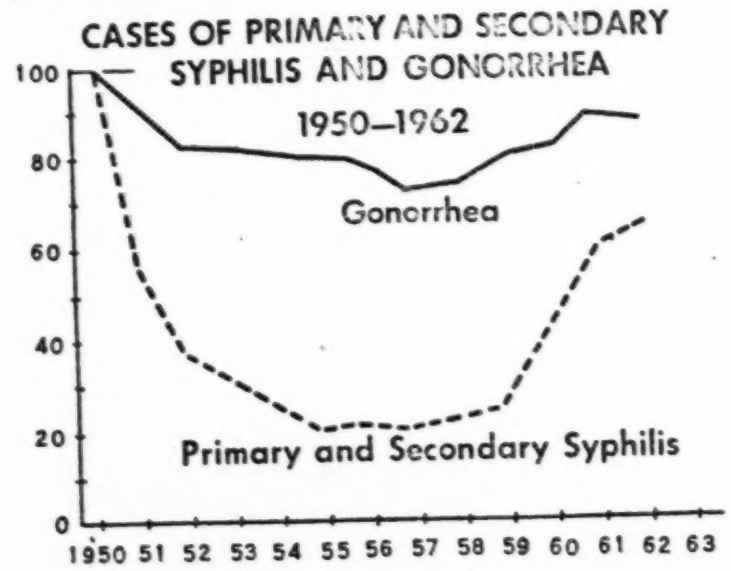
[1] U. S. Department of Health, Education, and Welfare, Public Health Service, "The Common Cold," (U. S. Government Printing Office, Washington 25, D. C.), p. 1.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Respiratory Infections (cont.)	responsible for the various respiratory illnesses and to indicate their modes of transmission. Emphasize that, in addition to numerous bacteria, at least 20 viruses have already been identified as important causes of respiratory infection. Assign a student to report on the results of recent research concerning the cause, prevention, and treatment of the common cold, the most prevalent of human illnesses. What new vaccines have been developed to combat the common cold, and how effective are they?	Text and Library Books
	Discuss some of the reasons why the common cold should not be ignored. Analyze the soundness of some of the remedies concerning "what to do when a person first feels a cold coming on." Discuss some of the symptoms of the common cold and report upon several other diseases (scarlet fever, diphtheria, measles, influenza, pneumonia) that may begin with the same symptoms. Point out that influenza and pneumonia still rank high as a leading cause of death among certain age groups. Ask for a report on the work of the U. S. Public Health Service in the prevention and control of influenza epidemics. How do such measures affect the community?	Modern Health. pp. 353-357. Health and Safety for You. pp. 216, 309-310, 455-460.
	Ask students to look up the term "pneumonia" in the dictionary. Point out that pneumonia is a term that is used to describe a condition of inflammation of the lung, which may result from several causes. A Manual for the Control of Communicable Diseases in California lists the three types of infectious pneumonia as pneumococcal; bacterial, other than pneumococcal; and virus pneumonia. Ask for a report on recent developments in the prevention and treatment of pneumonia.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. 1960, 416 pp.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Venereal Disease[1]	Inform students that venereal disease is a term that is applied to a group of diseases which are passed almost always through intimate body contact (usually sexual) with an infectious person. --The two most common of these diseases are syphilis and gonorrhea. Others include chancroid, lymphogranuloma venereum, and granuloma inguinale. --The micro-organisms that cause these diseases enter the body through unbroken mucous membranes, and occasionally through breaks in the skin. --They die when exposed to heat, drying, or soap and water. --There is little evidence of these diseases being transmitted through inanimate objects, such as toilet seats, drinking glasses, or towels. --Expectant mothers with the infection can transmit the disease to babies before or during birth. --There is usually no effective immunity against these diseases, and they may be contracted over and over again. Discuss with students the magnitude of the venereal disease problem nationally and locally. --Point out that venereal diseases now rank first among the reportable communicable diseases at the state and national levels. Los Angeles and San Francisco, with 59.8 per cent of the state's population, account for 75.8 per cent of the total cases of syphilis and for 73.9 per cent of the cases of gonorrhea.	Text and Library Books "Some Pragmatic Considerations in Venereal Disease Education," The Journal of School Health, 33 (April, 1963), 164-170. Los Angeles City Schools Instructional Aids for Teaching About Venereal Disease. Los Angeles County Health Department. Teaching Manual for the Venereal Diseases. Modern Health. pp. 396-397. Health and Safety for You. pp. 460-461. "The Venereal Disease Problem--Report of Special Articles," Medical Tribune, (1963), 1-4. "Venereal Disease in California--A Report to the Legislature," California's Health, 20 (February 15, 1963), 1.

[1] This material should be reviewed with the school principal for specific guidance concerning scope of coverage.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Venereal Disease (cont.)	--Illustrate by means of charts and graphs the trends which have occurred in relation to these diseases. For example, during the 10-year period following World War II (1947-1957), the reported cases declined to the extent that venereal diseases were no longer considered to be a serious problem.	Text and Library Books U. S. Department of Health, Education, and Welfare. The Eradication of Syphilis (U. S. Government Printing Office, Washington 25, D. C.)



In this graph, the curves represent the number of cases of gonorrhea and of both primary and secondary syphilis for the years 1950 through 1962, and are shown as a percentage of the cases officially reported in 1950.[1]

--Present an analysis of the venereal disease problem for the 15-19 year age group. Point out that this age group, which represents approximately 10 per cent of the total population, accounts for 25 per cent of the total cases of venereal disease reported.

Invite the school physician or nurse to serve as a resource person in the discussion of venereal disease.

---

[1] "The Venereal Disease Problem--Reprint of Special Articles," Medical Tribune, (1963), 1.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Venereal Disease (cont.)	Clarify the following terms in relation to venereal diseases: --Syphilis - An infectious disease that may spread throughout the entire body (systemic). --Gonorrhea - An infectious inflammatory disease, usually confined to the genital and urinary tracts in early stages. --Neurosyphilis - A stage of syphilis which involves the brain and spinal cord, and which may result in paresis, a form of syphilitic insanity, and locomotor ataxia, a disorder of the nervous system caused by syphilis and characterized by difficulty in coordinating voluntary movements. --Congenital Syphilis - A form of syphilis contracted by the unborn infant from its infected mother. --Chancre - The initial "sore" in syphilis. --Lesion - Diseased or injured tissue. --Ulcer - An open sore. --Latent - Not visible nor apparent; dormant. --Degeneration - Deterioration of tissue or organ.	Text and Library Books Modern Health. pp. 396-397.
241 Syphilis	Present an overview of the pertinent facts about syphilis. Point out that man is the only known reservoir of syphilis and that everyone is susceptible to the disease. It is world-wide in distribution and has presented a major public health problem since 1493, when Columbus' sailors were treated in Barcelona, Spain, for a "new" disease which they had contracted in the West Indies. There is no well founded previous historical or scientific evidence to indicate that syphilis was present in Europe prior to this date. Causative Agent The corkscrew-shaped organism that causes syphilis is the spirochete, Treponema pallidum. It is such a delicate microorganism that it can survive only a short time outside the	U. S. Department of Health, Education, and Welfare. The Eradication of Syphilis (U. S. Government Printing Office, Washington 25, D. C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Syphilis (cont.)	body. It is easily killed by drying, sunlight, and disinfectants. In early syphilis, the presence of the pathogen can be determined by the examination of some of the serum from the chancre (sore) under a microscope with dark-field illumination. (In this method of microscopy the object is visible only because it reflects light.) The usual method of staining bacteria for identification cannot be employed. The organism was first identified by Schaudinn and Hoffman in 1905. Transmission of Treponema pallidum Transmission of the organism results from direct physical contact with an infectious lesion. The spirochete enters the body through minute breaks in the skin, or through unbroken mucous membranes, and is carried throughout the lymphatics, finally entering the blood stream. The habitat of Treponema pallidum is deep in the body tissues. However, when the organism is deposited on moist, warm, mucous surfaces, or breaks in the skin, it can survive well enough to establish a colony, penetrate the surface, and eventually spread throughout the body. An expectant mother can transmit the spirochete to the fetus through the placental blood system and cause congenital syphilis. Stages and Complications of the Disease Primary (early) Stage This stage of the disease is characterized by a painless but highly contagious lesion called a chancre (shanker), which may appear at any time from 10 to 90 days after intimate contact with an infectious person. The chancre begins as a sore at the site where the spirochete entered the body. This can occur on other parts of the body, but it is most commonly found on the genital organs and	Text and Library Books California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 321-327. Los Angeles City Schools. Instructional Aids for Teaching About Venereal Disease. Los Angeles County Health Department. Teaching Manual for Venereal Disease.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Syphilis (cont.)	occasionally in or around the mouth. In men, the sores generally appear externally on the sex organs. However, in the case of women, the lesion may be internal, and hidden from view. The lymph glands near the infection may become swollen. In either sex, the lesion may disappear in two to five weeks without having been treated, and so appear to be healed. Thus a person with the infection could pass through the primary stage without realizing it. During this stage, the disease may or may not be detectable through blood tests. Secondary Stage Symptoms of secondary syphilis usually occur in about four to eight weeks after the appearance of the chancre. A skin rash may occur on any part of the body, and lesions of the mucous membrane surfaces are often found. Other symptoms at this time may include a sore throat, fever, mouth sores, headache, swollen lymph glands, pains in the bones and joints, falling hair, and mucous patches which may be found in the mouth or around the sexual organs. At this stage, the disease can be passed on through kissing as well as through sexual contact. Symptoms may occur, subside, and recur for a period of four or five years after initial contact and will vary both in appearance and intensity in different persons. Like the primary stage, the secondary stage is also a contagious period, and the symptoms described will also disappear without having been treated. Latent Stage During this stage, there are no visible signs or symptoms of the disease. The manifestations of the secondary stage gradually disappear and the disease passes into a period of latency. The organisms become imbedded in various body tissues, and the only means of detecting	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Syphilis (cont.)	the presence of syphilis is through a blood test. This period lasts anywhere from two to 50 years, but more commonly from five to 25 years. Late Stage After five years, untreated cases may or may not present manifestations of the infection. When apparent signs of the disease do appear, they often resemble or "imitate" the symptoms of other diseases. These symptoms depend upon what tissues have been destroyed. During this stage, progressive degeneration of the brain and spinal cord (paresis and locomotor ataxia) may occur, as well as damage to the heart and blood vessels and to the joints. Blindness, deafness, running sores, and tumor-like masses of the skin and mucous membrane are among the end results of the disease. The U. S. Public Health Service estimates that One in 15 will become a syphilitic heart victim One in 25 will be crippled or incapacitated One in 50 will become insane One in 200 will become blind Approximately 8,500 deaths each year are attributed to syphilis. These end results of the disease may take place as late as 20 to 30 years after the appearance of the original chancre, the first sign of the infection. Generally, this last stage of syphilis is non-infectious. Congenital Syphilis A pregnant woman infected with syphilis may easily transmit the disease to her unborn child if she does not receive prompt medical treatment. The risk of congenital syphilis is much greater if pregnancy occurs while the disease is in its early stages, and it is less likely to be a problem if pregnancy occurs in the later stages. By the fourth month of pregnancy, the condition of the placental membrane barrier is such that the organisms of	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Syphilis (cont.)	syphilis can penetrate the wall and thus infect the unborn child. Congenital syphilis is frequently fatal during the prenatal stage or during infancy. Treatment, preferably started by the fourth month and continued through the remainder of the pregnancy, usually assures the mother of a live baby free of syphilis. Affected babies, however, may have skin, liver, bone, lung, eye, adrenal, ear, or tooth disorders. Recent investigations show that, with the use of penicillin, treatment can be started later in pregnancy, sometimes as late as a few weeks before birth, and damage to the fetus may be prevented. Prevention and Control Diagnosis of syphilis can be ascertained only by a medical doctor and includes clinical examination, microscopic dark-field examination for the organism, and blood tests, such as the Wasserman, Kahn, Kolmer, and VDRL (Venereal Disease Research Laboratory). These tests determine the presence in the blood of "reagin," an antibody substance produced usually in response to syphilis but sometimes also in response to other infections ("biologic false positives"). Another test, the T.P.I. (Treponema pallidum Immobilization Test) determines the presence in the blood of antibodies specific only to Treponema pallidum. Diluted blood serum from the patient is mixed with live Treponema pallidum, which has been obtained from a syphilitic rabbit. The mixture is then examined microscopically. If the specific antibody is present, the treponemes are immobilized. Blood serum from a patient without the infection, or from a patient with a biologic false positive serologic test, has no effect on the motile spirochetes. The test procedure for the Fluorescent Treponemal Antibody	Text and Library Books Page, Lot B. and Perry J. Culver. A Syllabus of Laboratory Examination in Clinical Diagnoses. Cambridge: Harvard University Press, 1960. p. 456.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Syphilis (cont.)	Test (FTA) consists of reacting the patient's serum with a dried smear of intact cells of Treponema pallidum. The smear is then stained with a fluorescein-conjugated anti-serum against human gamma globulin. Treponemal antibodies (gamma globulin), if present, will coat the treponemal cells. The tagged anti-gamma globulin will then attach to the coated cells, which become visible microscopically when illuminated by ultraviolet light. Measures for the prevention and control of syphilis are as follows: 1. Programs of case-finding and reporting, which include interviewing of patients, tracing of contacts, and provision for early diagnosis and treatment. 2. Hygienic techniques, including special care in the disposal of discharges from open lesions and articles soiled by them, and attention to personal cleanliness. 3. Premarital and prenatal health examinations. 4. Mass education programs on the nature, cause, and incidence of the disease. Venereal disease rates are high among promiscuous persons because promiscuity increases the chance of infection. The following significant historical events may be used to construct a time line of medical advances in the fight against syphilis: 1905 Schaudinn and Hoffman, German scientists, discovered the cause of syphilis, Treponema pallidum. 1907 Wasserman, a German scientist, worked out the first blood test for detection of the disease.	Text and Library Books Bio-Science Laboratories. Specialized Diagnostic Laboratory Tests. p. 112. California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 321-327. "Venereal Disease in California--A Report to the Legislature," California's Health, 20 (February 15, 1963), 1. Los Angeles City Schools. Instructional Aids for Teaching About Venereal Disease.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION		RESOURCES
Syphilis	1910	Erlich, a German Scientist, in his 606th experiment, found that Salvarsan, an arsenical compound, was effective in the treatment of the disease. Salvarsan, or arsphenamine as it is also called, became known as "606".	Text and Library Books
	1913	Paresis was shown to be a stage of syphilis when the spirochetes were found in the brain tissue.	
	1917	Wagner-Jauregg, a Viennese physician, used the fever of malaria as a means of treating the insanity caused by syphilis.	
	1921	Levaditi, a French scientist, determined that bismuth could be used as part of the treatment for syphilis,	
	1931	Walter Simpson, an American physician, and Charles Kettering of General Motors Corporation developed a fever machine which induces artificial fever used as a supplemental treatment for the insanity caused by late syphilis.	
	1937	"Shadow on the Land," written by Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, awakened the public for the first time to the seriousness of syphilis.	
	1938	The first premarital examination law was passed.	
	1938	New York was the first state to pass a law requiring prenatal examination for syphilis to protect babies and mothers.	
	1943	Penicillin proved to be a safe, sure, and quick cure for syphilis.	
	1950-60	New and rapid screening tests for the detection of syphilis were developed. Venereal disease education programs were initiated.	

247

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Gonorrhea	**Present an overview of the pertinent facts about gonorrhea.** --Point out that gonorrhea is a purulent (pus-producing) infection which most commonly attacks the mucous membrane linings of the genital-urinary tract, the rectum, and the eye (conjunctiva). --Emphasize that man is the only known reservoir of the disease and that everyone is susceptible to it. Gonorrhea is world-wide in distribution. It has a history which goes back at least to Hippocrates (460 B.C.) and to Galen (200 A.D.), who gave the disease its name. Although rarely as destructive as late syphilis, gonorrhea can cause sterility, blindness, arthritis, and heart trouble. --Report that gonorrhea is among the top ranking communicable diseases. It affects both sexes and practically all ages, especially the 15-29 age group. Its rate of occurrence is much greater than that of syphilis. There are no reliable estimates of the true incidence of the disease. However, it is estimated that there are about 1,300,000 new cases each year and that about 200 deaths are caused by the disease. Approximately 500,000 cases are under treatment at all times. Causative Agent The pathogenic agent of the disease is the diplococcus, Neisseria gonorrheae. This bacterium is shaped very much like a coffee bean and occurs in groups of twos. The micro-organism is very delicate and dies within minutes after leaving the body. It is easily destroyed by the use of mild antiseptics or soap and water. However, the gonococcus is highly resistant when within the body and can be destroyed only by proper medical treatment.	Text and Library Books Los Angeles City Schools. Instructional Aids for Teaching About Venereal Disease. Los Angeles County Health Department. Teaching Manual for Venereal Diseases. California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 144-152.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Gonorrhea (cont.)	Transmission of Neisseria gonorrheae The organism usually is passed from one person to another through intimate contact, nearly always sexual intercourse. The gonococcus is usually contained in the purulent discharges from the infected mucous membranes. On occasion, this disease may be spread by the use of moist, contaminated articles, such as towels, which have been freshly soiled by discharge from an infected person. Gonorrhea may also be transmitted by a mother with the disease to a newborn infant during its passage through the birth canal. In such cases, the infant's eyes may become infected with the gonococcus organism. By this method, it is also possible to transmit the infection to the eyes. Symptoms and Complications of the Disease The incubation period (the time interval between the initial infection and the appearance of symptoms of the disease) is generally three to five days. Gonorrhea in the male and female differ in seriousness and ease of identification. In the male, symptoms and complications of the disease include: 1. An itching or burning sensation about the genital organs. 2. A thick, yellow, purulent (pus) discharge from the urethra, occurring usually anywhere from three to nine days following infection 3. Painful urination. 4. Inflammation and scarring of tissue. The infection may travel to the posterior urethra, epididymis, and prostate gland; and, after varying intervals may travel to other body tissues. Inflammation of the urethra may form scar tissue, which makes urination difficult.	Text and Library Books Los Angeles City Schools. Instructional Aids for Teaching About Venereal Disease.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Gonorrhea (cont.)	In the female the symptoms are often so mild as to pass unnoticed. Thus a woman may be infected without knowing it. 1. Initially, the infection may involve the urethra, the cervix, the vagina, the uterus, and the Fallopian tubes. 2. Acute peritonitis may occur if the infection travels to the Fallopian tubes and the pus formed enters the peritoneal cavity. Sometimes the swelling and closing of the Fallopian tubes prevent the passage of ova, and sterility results. 3. A third stage of widespread infection results in damage to other body tissues such as the bones and joints and the heart. Although death from gonorrhea is rare, complications are often very serious. Infection of the eyes during birth formerly caused blindness, but the placing of a few drops of a prophylactic medicine in newborn babies' eyes (required by law in most states) has eliminated nearly all blindness from gonorrhea. Prevention and Control Diagnosis can be made only by a medical doctor through a clinical examination, study of the personal history of the patient, and microscopic examination of the pus or discharge (using Gram stain) and laboratory culture of the organisms. Several antibiotics, including penicillin, are used in the treatment of the disease. In both men and women, the disease remains infectious until cured, and this condition can be determined only by a medical doctor. Measures for the prevention and control of gonorrhea are as follows: 1. Programs of case-finding and reporting which include	Text and Library Books California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 144-145. "Venereal Disease in California--A Report to the Legislature," California's Health, 20 (February 15, 1963), 1.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Gonorrhea (cont.)	interviewing of patients, tracing contacts, and provision for early diagnosis and treatment. 2. Hygienic techniques, including special care in the disposal of discharges and articles soiled by them, and attention to personal cleanliness. 3. Premarital and prenatal health examinations. 4. Mass education programs on the nature, cause, and incidence of the disease. Historical events of importance in tracing significant advances in the fight against gonorrhea include: 1870 Neisser, a German physician, discovered the cause of the disease as the gonococcus. 1884 Gram, a Danish bacteriologist, developed a stain which is one of the means of diagnosing gonorrhea. 1937 Sulfa drugs came into use as a cure for gonorrhea. 1943 Penicillin was introduced in the treatment of gonorrhea.	Text and Library Books
Other Venereal Diseases	Present a brief overview of pertinent facts about chancroid, lymphogranuloma venerum, and granuloma inguinale. Point out that the occurrence of these diseases is less common than that of either syphilis or gonorrhea. The pathogenic agent that causes chancroid is the bacillus, Hemophilus ducreyi, sometimes referred to as the Ducrey bacillus; lymphogranuloma venerum is caused by a virus; and granuloma inguinale is caused by a bacterium known as the Donovan body (Donovania granulomatis). Measures for the prevention and control of this disease are similar to those for other venereal diseases.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 86; 191-193; 154-155. Los Angeles City Schools. Instructional Aids for Teaching About Venereal Disease.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Community Programs for the Control of Venereal Disease	List on the chalkboard and discuss the reasons why the venereal diseases are a serious community health problem.	Text and Library Books
	Appoint a student to interview the school physician or a local health officer to find out some of the reasons for the increase in venereal disease rates, especially among teenagers. In what areas of the United States are the increases greatest?	"The Venereal Disease Problem--Reprint of Special Articles," Medical Tribune, (1963) pp. 1-4.
	Ask for volunteers to make a study of pertinent legislation in California which pertain to the control of venereal diseases. How do these laws compare with the laws of other states?	Venereal Disease in California--A Report to the Legislature, California's Health, 20 (February 15, 1963), 1.
	View photographic slides and prepared microscopic slides of the various pathogenic agents of the venereal diseases.	
	Request students to develop a chart summarizing pertinent information about the major venereal diseases. For example, the following headings may be used:	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 398-408.

Disease-Producing Pathogen	Symptoms and Effects on the Body	Diagnostic Procedures	Treatment

Assign a brief report on the major historical developments in the treatment of the venereal diseases.	State of California. Health and Safety Code.
Hold a panel discussion for the purpose of identifying community responsibilities in the control of venereal disease. Ask the students to explain what procedures they would use in carrying on a campaign for the control of this group of diseases. Discuss the role of the following:	

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Community Programs for the Control of Venereal Disease (cont.)	Public and private health agencies The private physician Other groups in the community The individual Find out what services are provided by the local health departments in an effort to help prevent the spread of venereal diseases. For example, consider: Clinics for diagnosis and treatment (Physicians are available) Contact interviewing and follow-up Laboratory diagnostic services for clinic patients Private physicians Fducational materials for distribution to physicians, schools, and the general public	Text and Library Books
	Appoint a committee to prepare a spot map showing locations of clinics for venereal disease control in Los Angeles.	Contact the Health Department for information concerning the locations of clinics.
	Ask students to find out to what extent public funds are being used to support research and education for the control of venereal diseases. How does this sum compare with the amounts of money spent for the control of other diseases?	
	Provide a question box so that students may submit inquiries on venereal diseases without embarrassment. Invite the school physician or nurse to answer the questions submitted by students.	
Tuberculosis	Use health statistics to present an overview of the extent to which tuberculosis is a public health problem. Point out that this disease still claims the lives of more people between the ages of 15 and 45 than ary other communicable disease. The U. S. Public Health Service estimates that there are approxi-	Pamphlets*

*List of Approved Free Supplementary Materials: Secondary.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Tuberculosis (cont.)	mately 250,000 active cases of tuberculosis in the United States. Provide opportunities through the use of photographis slides, charts, and prepared microscopic slides for the class to observe the tubercle bacillus, Mycobacterium tuberculosis. Although the most common site of infection is the lungs, tuberculosis can infect any tissue or organ of the body. Tuberculosis can also infect animals (bovine tuberculosis). However, bovine tuberculosis is now relatively uncommon in the United States. Illustrate some of the ways in which tuberculosis may be transmitted. Discuss the characteristic symptoms and complications of the disease. Ask for a report on recent techniques for the treatment and cure of tuberculosis (rest, prompt treatment with antimicrobial drugs). How does this disease affect the lives of the patient and his family? Discuss the use of the BCG vaccine as a protective measure against tuberculosis. This vaccine consists of a weak strain of bovine tuberculosis baccilli, which causes a mild infection when injected into a human being. Explore school and community programs for the eradication of tuberculosis. List the salient features of diagnostic tests for the detection of tuberculosis. Point out that a positive reaction to one of the skin tests does not necessarily mean that a person has an active case of tuberculosis. It merely indicated that at some time the individual has been infected with the organisms and should have a chest X-ray and a complete physical examination, including laboratory tests. Assign students to prepare a written report identifying preventive measures for the eradication of tuberculosis. Ask	Text and Library Books California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 350-356. Modern Health. p. 411. Health and Safety for You. pp. 456-458. Modern Health. pp. 422-423. Modern Health. pp. 429-430. Health and Safety for You. p. 460. Modern Health. P. 430. Health and Safety for You. pp. 458-460.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Tuberculosis (cont.)	them to state how they would conduct and participate in such a program.	Text and Library Books
Hepatitis	Evaluate the incidence of hepatitis as a community health problem. Point out that hepatitis is an acute infection characterized by fever, nausea, general malaise, and abdominal discomfort. The condition is often followed by jaundice (a condition resulting from the presence of bile pigments in the blood and characterized by a yellowness of the skin and the whites of the eyes). This disease is world-wide in distribution and ranks high among the major communicable diseases. Request students to prepare graphs and maps comparing the morbidity and mortality rates for this disease with those for other communicable diseases. Discuss the modes of transmission of each of the two types of hepatitis: 1. Infectious hepatitis (Epidemic Hepatitis) 2. Serum hepatitis (Homologous Serum Jaundice) Explain that infectious hepatitis is caused by a virus which is presumed to be transmitted directly through person to person contact and indirectly by contaminated water, milk, and food (for example, in clams from areas polluted by sewage). Serum hepatitis is transmitted through transfusion of whole blood, injection of blood serum or plasma from infected persons, and by accidental contamination of syringes or needles with traces of blood from infected persons. Appoint a student to report on the findings of recent research in the isolation of the hepatitis virus and in the development of vaccines and other promising measures for the prevention and control of this disease.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 157-161. Modern Health. p. 334.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Hepatitis (cont.)	List on the chalkboard and discuss measures for the prevention and control of hepatitis. Such a list should include: 1. Proper community sanitation, with particular emphasis on efficient sewage disposal. 2. Effective practices of personal health and hygiene, especially handwashing. 3. Sterilization and other technical procedures to prevent transmission of the virus through blood products or contaminated instruments. 4. The use of immune serum globulin (gamma globulin) following exposure to infectious hepatitis, if prescribed.	Text and Library Books
Infectious Mononucleosis	Inform students that the occurrence of infectious mononucleosis is reported from many parts of the world, particularly continental Europe, Great Britain, Australia, and the United States. The disease is reported most frequently among the teenage and young adult populations. Point out that, although no infectious agent has been identified, the suspected cause of the disease is presumed to be a virus which is transmitted through direct person-to-person contact. The likely source of infection is discharge from the respiratory tract. Characteristic symptoms of the disease include high or moderate fever, enlargement of the lymph glands, sore throat, and general fatigue. A long recuperative period is usually required, but the disease is rarely fatal. Invite the school nurse to report the extent to which this disease is a school health problem and to discuss measures for its prevention and control. At present, there if no immunity against the disease.	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. pp. 207-208.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Poliomyelitis	Relate briefly the progress which has been made toward the eradication of poliomyelitis. How did each of the following groups contribute to the quest for a solution to this virus disease? Research scientists Private health agencies Public health agencies The individual	Text and Library Books Pamphlets* Modern Health. pp. 213-215.
	Assign the following problem to a panel: The names of Jonas Salk and Albert Sabin have been suggested as recipients for an honorary award in virology. The award also entitles the recipient to a considerable sum of money. Ask the panel to act as a committee which is responsible for making the final selection. Alert each panel member to be prepared to justify the reason for his choice.	Modern Health. pp. 214-215. Health and Safety for You. pp. 352-353.
	Discuss the basic features of each of the vaccines which bear the names of Salk (injected vaccine containing dead polio virus) Sabin (oral vaccine containing weakened live polio virus) What new modifications of these vaccines are now available?	
	Appoint a student to interview the health coordinator to find out what requirements (school policies and state legislation) exist concerning polio immunization. Discuss the purposes and values of these requirements.	Los Angeles City Schools, Division of Secondary Education Bulletin No. 17. Poliomyelitis Immunizations.
	Explore the need for continuing polio immunization programs. Discuss some of the reasons why some people are not vaccinated against this disease. Ask the class to suggest ways to motivate people to obtain vaccinations against polio.	*List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Poliomyelitis (cont.)	**Ask students to describe some of the crippling effects that have been caused by polio.**	Text and Library Books
Measles	Ask for a report on the latest developments concerning a vaccine for measles. Primarily a common childhood disease, measles can cause major complications, such as inflammation of the brain, pneumonia, and ear infections leading to deafness. The death rate from this disease is higher than that for polio. Two vaccine types which are available include: 1. A dead virus which requires three innoculations one month apart and produces no reaction. 2. A live virus which requires one innoculation with a simultaneous injection of gamma globulin to weaken the intensity of the reaction.	Los Angeles City Schools. Guarding the Health of Pupils. Modern Health. p. 405. Health and Safety for You. p. 448.
	Point out that German measles, which is considered to be milder than ordinary measles in children, can cause congenital defects in babies if the mothers contract the disease during the first three months of pregnancy. The virus causing this disease has been identified. Immunity may be acquired as a result of having had the disease. What is the most recent information concerning the availability of a vaccine for German measles? Ask students to suggest reasons why some people believe that precautions should not be taken to avoid exposure of small girls to German measles.	
Other Communicable Diseases	Assign students to prepare a chart listing the suspected cause, prevention, and treatment of communicable diseases for which there are no available immunizing agents. Find out the morbidity and mortality rates for diseases for which vaccines have been developed and are available. Discuss the extent to which tetanus, smallpox, and diphtheria are	California State Department of Public Health. A Manual for the Control of Communicable Diseases in California, 1960. 416 pp.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Other Communicable Diseases (cont.)	public health problems. What is the recommended immunity schedule for these diseases? Ask the class to conduct an informal survey among their family members and friends to find out the number of persons who have not been immunized against smallpox within the last five years. What implications can be drawn from these findings?	Text and Library Books Los Angeles City Schools. Guarding the Health of Pupils.
Individual Protection Against Disease General Body Defenses	Present an overview of the protective mechanisms which help the body to resist disease. --Explain that the skin is considered the body's first line of defense because it provides a protective covering against which micro-organisms cannot penetrate unless the skin is broken. --Point out the protective function of body secretions such as tears and mucus. For example, the lachrymal gland secretions which constantly bathe the eye contain a substance called lysozyme. This substance acts like an antibiotic to help keep the eye free from infections. --Use charts and models to help explain the process by which the sticky, mucus coating, together with the ciliary action of the respiratory tract, function to trap and remove foreign bodies from the air passages. --Indicate that the white blood cells (leucocytes) are considered the body's second line of defense because by phagocytic action they attack disease-producing organisms that penetrate body tissues. These cells are able to pass in amoeba-like fashion through capillary walls and to move freely in the tissues ingesting great numbers of invading organisms. The number of white blood cells increases rapidly when the body has been invaded by infectious organisms, and a high white blood cell count may be an indication of a bacterial infection. (This count may go as high as 30,000. A white count of approximately 5,000 to 10,000 is considered normal.)	Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. p. 161. Modern Health, pp. 422-428. Health and Safety for You. pp. 442-444.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
General Body Defenses (cont.)	--Discuss the protective function of the different kinds of white cells that occur in the blood. Use prepared microscopic slides of a blood smear (Wright's Stain), photographic slides, and charts to identify each kind. Explain that a differential count of white cells indicates the proportion of each type of white cell present per cubic millimeter of blood. Normally, there is a total of approximately 5,000 to 9,000 white blood cells per cubic millimeter of blood, with an average count of 7,000. This number represents at least six different kinds of white blood cells, which may be divided into two classes, as shown in the following table:	Text and Library Books Modern Health. pp. 424-426. Health and Safety for You. p. 442.

WHITE BLCOD CELLS (LEUCOCYTES)[1, 2]

Type and Per Cent per 7,000 Leucocytes	Protective Function
A. Granular or polymorphonuclear leucocytes (contain granules in the cytoplasm and have a nucleus of varying shapes, usually with two or three lobes. These cells are produced in the bone marrow.)	
Neutrophil 65-70%	This cell is motile, active, and phacocytic. Its high protein-

[1]Peter Gray, The Encyclopedia of the Biological Sciences (New York: Reinhold, 1961), p. 161.

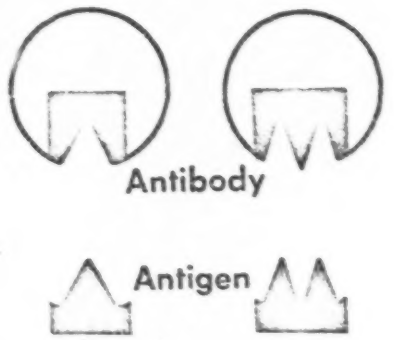
[2]Lot B. Page and Perry J. Culver, Syllabus of Laboratory Examinations in Clinical Diagnoses (Cambridge: Harvard University Press, 1960), pp. 162-179.

260

CONTENT	ACTIVITIES AND INFORMATION		RESOURCES
General Body Defenses (cont.)		digesting enzymes enable it to ingest, engulf, and digest invading bodies. This is the first leucocyte to appear at the site of an infection and the chief cellular constituent in acute inflammation. The cell stains a lavendar or lilac color with Wright's stain. It appears to have a biloped or triloped nucleus and a granular cytoplasm.	Text and Library Books
	Eosinophil 0-3%	This cell plays a role in allergic disorders; however, its exact function is unknown. It is less motile and has fewer phacocytic properties than neutrophil. The eosinophil characteristically occurs in abundance in allergic reactions to foreign protein.	
	Basophil 0-2%	The function of the basophil is not known. This cell produces the anticoagulant substance, heparin.	
	B. Nongranular or mononuclear leucocytes		
	Lymphocytes 0-2%	The role of this cell is immunization and is not clearly defined. There is a marked increase in the number of lymphocytes in virus diseases, such as infectious mononucleosis and infectious hepatitis. There are both large and small lymphocytes. The spherical-shaped	

CONTENT	ACTIVITIES AND INFORMATION		RESOURCES
General Body Defenses (cont.)		nucleus of the cell is surrounded by a thin rim of cytoplasm. The cytoplasm is nongranular and stains a light blue. The nucleus stains a much deeper blue or purple. These cells are produced in lymphatic tissues of the tonsils, spleen, and thymus.	Text and Library Books
	Plasma Cells 0-2%	These cells rarely are present in the circulating blood, and their exact function is unknown. The plasma cells contain large amounts of gamma globulin. An absence of plasma cells is associated with a condition which is usually manifested by recurring infections. These cells are different morphologically from the lymphocytes, but they are still regarded by some authorities as a variant of the lymphocyte. They may increase in the peripheral blood in cases of measles, chickenpox, and scarlet fever. The cell stains a deep blue, masking red components. Its cytoplasm is nongranular, and vacuoles are often present.	De Coursey, Russell. The Human Organism. New York: McGraw-Hill, 1961. pp. 292-296.
	Monocyte 0-8%	Formed in the same tissues as the lymphocytes, these cells are highly phacocytic. Their specific function appears to be that of removal of pathogenic micro-organisms, as well as old red and white blood cells	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
General Body Defenses (cont.)	and other debris. They increase in number in certain bacterial infections, such as tuberculosis. The nucleus of the cell stains a deep blue or purple. Histiocytes 0-4% This cell is frequently classified as a monocyte in a differential white blood count. Its phacocytic action is similar to that of the monocyte. --Describe the function of the lymphatic system in combating infections. Discuss the defensive role of lymph. Point out that this fluid flows from the body tissues into the lymphatic vessels; it undergoes a filtering process in the lymph nodes, which are scattered along the lymph vessels, and eventually becomes a part of the venous circulation. --Enumerate the defensive functions of the lymphatic tissues. For example, these tissues 1. Produce lymphocytes. 2. Ingest bacteria and other toxic foreign materials. 3. Play a role in antibody formation. (Antibodies are produced by plasma cells in the lymphatic tissue.)	Text and Library Books Modern Health. pp. 424-427. Health and Safety for You. pp. 295-296.
Mechanisms of Immunity Antigen-Antibody Reactions	Assign students to obtain definitions of the terms "immunity" and "immunology" from at least two different references. Point out that, in a limited sense, the science of immunology deals with the procedures by which the body develops a resistance to infectious disease. However, a more encompassing definition of this science has come to include similar immunological mechanisms, such as hypersensitivity, the study of the heightened response to reactions involving allergies, acquired tolerance to and rejection of foreign tissue, and	Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. pp. 503-505. "The Mechanisms of Immunity," Scientific American, 204 (January, 1961), 58-67.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Antigen-Antibody Reactions (cont.)	the autoimmune diseases (conditions wherein immune responses occur which involve the host's antigens). Emphasize that generally immunological reactions involve the body's ability to react to, or to reject, substances which are foreign to its own biochemical makeup. These foreign ("nonself") substances are called antigens. They may be bacteria, viruses, protozoa, fungi, foreign tissue cells, or other agents. The antigen stimulates the body to produce a counteracting substance called antibody. The antibody combines with the antigen and renders it inactive. Discuss antigen-antibody specificity. Devise flannel or chalkboard illustrations using hypothetical antigen-antibody models of various geometric shapes to show graphically the specificity that each antibody possesses with the antigen that stimulated its production. Antibody against one disease does not usually afford protection against another. Indicate that generally the antibody has been identified as the gamma globulin portion of the blood. The formation of an antibody represents the synthesis of a specific protein by a specialized group of tissue cells. The lymphocyte appears to be the cell that is most closely associated with antibody formation. However, plasma cells and other formed elements of the blood seem to have essential roles. In addition, the polymorphonuclear and phacocytic leucocytes function in the final ingestion and elimination of destroyed tissue.  	Text and Library Books "The Thymus Gland," Scientific American, 207 (November, 1962), pp. 50-56. Modern Health. pp. 427-432. Health and Safety for You. pp. 443-450. Health and Safety for You. p. 283.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Antigen-Antibody Reactions (cont.)	Discuss some of the ways in which antibodies aid in the destruction of antigens. For example: --Agglutinins cause antigens to cluster together. --Cytolysins cause antigens to dissolve. --Antitoxins are formed in response to antigenic poisons and neutralize their pharmocological effects. --Opsonins combine with specific antigens and sensitize them in such a manner that they are more readily destroyed. Assign interested students to report on the evaluations of the major theories of antibody formation.	Text and Library Books Modern Health. pp. 425-428.
Types of Immunity 265	Discuss the various ways in which immunity to disease may be acquired. Ask students to cite the different ways in which an individual whose blood contains antibodies against a specific disease may have acquired them. For example: 1. Inherited or natural immunity. 2. Active immunity resulting from either a. Having had a specific disease b. Being inoculated with the specific antigen. This may include attenuated or dead pathogens, or their toxic products (toxoids). The specific serum proteins (antibodies) which are produced in response to the antigens usually are produced in the gamma globulin portion of the blood. 3. Passive immunity results from the transfer of immune serum (gamma globulin) from another person, as in the transmittal of measles, or from animal (horse antitoxin), as in a tetanus infection. In contrast with active immunity, passive immunity is usually of short duration.	Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. p. 161. Modern Health. pp. 427-428. Health and Safety for You. pp. 443-449.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Immunizations	Discuss the role of immunization in disease prevention. Compare the case rates for poliomyelitis and smallpox both before and after specific immunization agents were developed against these diseases. Why are case rates for smallpox again on the increase? Instruct students to study the purposes of vaccines, toxoids, and immune serums. Ask students to develop an immunization schedule for the following types of individuals: 1. A pre-school child 2. A child entering school for the first time 3. An adult 4. A person traveling to South America 5. A person traveling to Europe 6. A person traveling to Asia 7. A person traveling to Africa Discuss the role of skin tests as a means of detecting infectious diseases and of determining immunity to them. Ask students to name several skin tests that are used for these purposes. For example, coccidiodomycosis and tuberculosis screenings are used for diagnostic purposes, and the Schick test is used for determining immunity against diphtheria. Explain that the above tests are essentially antigen-antibody reactions. Instead of antigen and antibody combining as in immunization, these substances react to form a wheal, or red swollen area which is typical of hypersensitivity. Since it is an excellent indicator of hypersensitivity, the skin is usually injected intradermally with the antigen. When used as a screening procedure for the detection of infectious disease, a positive test may indicate either active disease	Text and Library Books California State Department of Public Health. A Manual for the Control of Communicable Diseases in California. 1960. pp. 409-411. Modern Health. p. 432. Health and Safety for You. pp. 443-449. California State Department of Public Health. Guide for Use of Common Immunizing Agents. 1960. "Delayed Hypersensitivity," Scientific American, 202 (April, 1960), 129-138. Modern Health. p. 432. Gray, Peter. The Encyclopedia of the Biological Sciences. New York: Reinhold, 1961. p. 507.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Immunization (cont.)	or a past infection (immunity). Skin test reactions may be of the immediate type, with the appearance of a wheal within minutes after injection; or the delayed type, with no reaction for several hours (sometimes one to three days).	Text and Library Books
Advances in Chemotherapy and Antibiotics	Assign students to report on developments in the use of chemotherapy for the treatment of infectious diseases. Identify some of the chemical sources of medicinal drugs. Assign special reports on developments in the field of antibiotics. What are the sources of the major antibiotics? What are the limitations of these drugs? What precautions should be exercised in their use? Point out that there must be a continuous search for new drug sources in order to combat resistant or mutant strains of pathogenic organisms. Hold a panel discussion to evaluate the contributions of these drugs to mankind. How have these drugs affected health and longevity?	Modern Health. pp. 433-435. Health and Safety for You. p. 212-213.
Responsibilities in Disease Control Individual	Ask students, "To what extent is the individual citizen responsible for disease prevention and control?" Request students to list health regulations to which an individual may be held accountable. Identify and discuss effective measures for disease prevention in the home. For example: 1. Refuse and garbage disposal 2. Kitchen sanitation and food handling 3. Storage and refrigeration of foods 4. Isolation procedures	State of California. Health and Safety Code. Health and Safety for You. pp. 434-435.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
School	Assign a student to interview the school nurse concerning policies for the isolation of students suspected of having an infectious disease. Instruct the student to report to the class on the kinds of facilities that are available for such individuals. List on the chalkboard the diseases requiring students to be excluded from school. What regulations exist concerning the health of cafeteria workers, the proper handling, storage, and refrigeration of cafeteria foods, and the procedures for dishwashing?	Text and Library Books Los Angeles City Schools. Health Branch Handbook for Admimistrators and Their Staffs.
Community	Develop a list of effective community health procedures for communicable disease control. Survey several of the community programs for disease prevention to identify the kinds of techniques that are utilized. Emphasize that these measures depend a great deal upon such factors as the 1. Extent to which a particular disease is generally susceptible 2. Availability of effective immunizing agents 3. Ways by which diseases are spread (vector control, protection of food and water supply, and sanitary inspections) 4. Classification of the disease as "internationally quarantinable" (yellow fever, louse-borne typhus, smallpox, plague)	California State Department of Public Health. A Manual for the Control of Communicable Disease in California, 1960. pp. 24-26. Health and Safety for You. pp. 432-435.
Legal	Examine the legal basis for the fixing of responsibilities in disease control. Point out that the responsibility is shared by the State Department of Public Health, the local health officer, and the community itself. This responsibility is defined and fixed in two kinds of legislation, as follows:[1]	State of California. Health and Safety Code.

[1] California State Department of Public Health, A Manual for the Control of Communicable Diseases in California (1960), p. 397.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Legal (cont.)	1. The Health and Safety Code defines the functions and duties of state and local health departments as well as the responsibilities of certain individuals. Listed are statutory provisions concerning quarantine, isolation, reporting, etc., with provision for legal penalties for violation of the statutes. 2. Detailed rules and regulations for the control of specific communicable diseases are also set forth by the State Board of Public Health in the Health and Safety Code. These rules and regulations constitute a portion of Title 17 of the Administrative Code of the State of California and have the effect of law. Their purpose is to interpret, expand, and implement the broad general provisions of the statutes of the Health and Safety Code . . . making them applicable to the control of specific diseases. Request that a student report on the quarantine laws of the city and county. Evaluate the practice of quarantine as a preventive measure. Compare the prevalence of this practice today with its use several years ago. Discuss some of the reasons why this practice is not used extensively for the control of childhood diseases. Discuss the extent to which the Federal government is legally responsible for disease prevention and control. Assign a student to report to the class on present health procedures that are required for international travel. Discuss the underlying bases for regulations which require the inspection of cargo ships, railroad trains, airplanes, and vehicles which enter the country. The U. S. Public Health Service Quarantine Station at Rosebank, Staten Island, New York, annually screens the health status of about one million passengers and seamen	Text and Library Books U. S. Department of Health, Education, and Welfare. Immunization Information for International Travel. (U. S. Government Printing Office, Washington 25, D.C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Legal (cont.)	on some 6,000 vessels coming to this country and another million passengers and crew members arriving at Kennedy Airport on about 18,000 flights. Staff personnel also check the health of all aliens immigrating to the United States through New York. In addition to their work in controlling communicable diseases, they inspect passengers' documents, especially to make sure that vaccination certificates are complete and genuine, inoculate dogs against rabies, and check on sanitary conditions on ships.[1] Present a hypothetical problem involving a disease epidemic. Instruct students to identify the extent of responsibility of the individual, the school, the city and county health offices, the state health department, and the U. S. Public Health Service in solving the problem.	Text and Library Books
Chronic and Degenerative Diseases	Ask students to state several reasons why the chronic and degenerative diseases are the chief cause of death and crippling of persons in the United States today. Obtain and compare health statistics for the leading chronic and degenerative diseases of the city, county, state, and nation. Use charts to compare the incidence of leading chronic and degenerative diseases among the general population with the incidence among persons of various age groups. What are the leading diseases for the 15-19 and 20-24 age groups?	U. S. Department of Health, Education, and Welfare. National Vital Statistics Division. Vital Statistics of the United States. (U. S. Government Printing Office, Washington 25, D. C.). American Heart Association. Pamphlet Series* Modern Health. pp. 447-448. Health and Safety for You. p. 38.

[1] Medical Tribune, (November 8, 1963), 17.

*List of Approved Free Supplementary Materials: Secondary

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Diseases of the Cardiovascular System	Analyze public health statistics to find out what age groups are affected by diseases of the cardiovascular system. Point out that these diseases can occur at any age. Some children are born with such conditions (congenital heart defects). However, the death rate from cardiovascular diseases is highest among persons 25 years of age and over, and lowest among children one to four years of age. Inform students that heart disease is a general name for at least 20 different kinds of heart conditions. The three most common types--rheumatic heart disease, hypertensive, and coronary artery disease--account for more than 90 per cent of the deaths.	Text and Library Books U. S. Department of Health, Education, and Welfare. National Health Institute. Heart Disease. (U. S. Government Printing Office, Washington 25, D. C.). Health and Safety for You. pp. 293-294.
Congenital Heart Defects	Discuss some of the suspected causes of heart disease among persons in various age groups. Request students to construct graphs to illustrate this information. Report that congenital heart defects constitute the major congenital disorder in the one to four year age group. This type of disease includes a number of defects or abnormalities of the heart and blood vessels with which children are sometimes born. The defects result from failure of the infant's heart or of a major blood vessel near the heart to develop normally during the period of growth before birth.[1] Use charts and models to help illustrate how the following conditions may disrupt the circulatory system and may impair growth and vitality: 1. Septal defects (openings in the wall of the tissue /septum/ that divides the heart into left and right sides or between auricles and ventricles)	Modern Health. p. 384.

[1] American Heart Association, If Your Child Has a Congenital Heart Defect (New York: 1960), p. 17.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Congenital Heart Defects (cont.)	2. Constriction or narrowing of the aorta 3. Narrowing of the heart valves (stenosis) 4. Failure of the opening between the pulmonary artery and the aorta to close normally within a few weeks after birth Emphasize that a majority of the 30,000 to 40,000 children who are born with congenital heart defects can be helped by surgery.[1]	Text and Library Books
Rheumatic Heart Disease	Report that rheumatic fever is the major cause of heart disease among boys and girls of school age. The condition is the result of inflammation and scarring of the heart muscle and the heart valves following rheumatic fever. The scarring may impair the function of the valves so that they do not open fully or close completely. This disorder interferes with the pumping action of the heart and disrupts the blood flow. A physician listening to a rheumatic heart can usually detect a blowing noise called a murmur. Children with such defects become short of breath from exertion that normally would not cause this effect. Emphasize, however, that murmurs do not necessarily indicate heart damage. Some murmurs are the result of congenital heart defects. The most common type, "the innocent heart defect," does not indicate heart damage and is not disabling. Assign a student to present a special report on the cause, prevention, and treatment of rheumatic fever. Point out that the cause of this disease is not completely understood. Rheumatic fever is not contagious; however, research has shown that 90 per cent of the cases of this disease are preceded by a particular streptococcal infection (Group A hemolytic streptococcus) of the throat, nose, or tonsils. There	American Heart Association. Pamphlet series* U. S. Department of Health, Education, and Welfare. National Heart Institute. Rheumatic Heart Disease. (U. S. Government Printing Office, Washington 25, D. C.) Modern Health, p. 383. Health and Safety for You. pp. 294-295.

[1] Ibid., p. 8.

*List of Approved Free Supplementary Materials: Secondary

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Rheumatic Heart Disease (cont.)	appears to be a tendency for the disease to run in families. This may be the result of either hereditary or environmental factors. There is a tendency also for this disease to recur. Because there are no single reliable symptoms, rheumatic fever can be diagnosed only by a physician. Confirmation usually requires a number of procedures, including blood tests, fluoroscopy, and an electrocardiogram. Indicate that the treatment for acute rheumatic fever is largely bed rest. Penicillin and other specific antibiotics are effective against streptococcal infections. Disease prevention, early diagnosis, and adequate medical and nursing care constitute a basic procedure against rheumatic heart disease. Assign a student to find out the extent to which rheumatic fever and heart disease programs are being conducted by the health department and the local heart association as part of the public health effort. Report that heart disease may also result from untreated syphilis. The spirochete that causes syphilis invades the aorta during the course of the infection; however, evidence of actual heart damage is not detected for many years. In the case of syphilis this condition is completely preventable if treated with specific antibiotics during early stages of the disease.	Text and Library Books Health and Safety for You. pp. 294-295.
Hypertension	Explain that hypertension is another name for high blood pressure. This is not a disease itself but rather a condition which may arise from several different causes. Consistently high blood pressure over a long period may result in damage to the heart, the kidneys, and to other organs of the body. Indicate that blood pressure may be defined simply as the amount of force (pressure) that is exerted by the blood	Modern Health. pp. 366-371. Health and Safety for You. pp. 292-293.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Hypertension (cont.)	against the walls of the arteries. This pressure is caused by the pumping action of the heart and is maintained by the elastic walls of the arteries. Blood pressure is highest during the systole--the period when the heart contracts--and lowest during the diastole--the period between contractions. The sphygmomanometer, which is calibrated in millimeters of mercury, is the instrument used to measure blood pressure. Point out that normally the pressure, measured in millimeters of mercury, in the arteries ranges between 100 and 140 systolic (as the heart contracts) and between 70 and 90 diastolic (between contractions). A blood pressure of 120 systolic and 80 diastolic is expressed as 120/80. Blood pressure up to 140/90 or 150/90 is usually considered normal. Demonstrate the use of the sphygmomanometer. Indicate that the cloth cuff which is wrapped around the upper arm contains a rubber bag which is attached to a small rubber bulb for pumping air and to a manometer (pressure-measuring device). Placement of a stethoscope over the brachial artery directly below the cuff allows the detection of systolic and diastolic pressure through variations in the sounds that are caused by changes in pressure as the blood flows through the artery. The cuff serves as a constricting band which stops the blood flow when the pressure exerted by it is higher than systolic pressure. At this point, all sounds disappear. The pressure is then decreased gradually until a sound can be detected. The pressure reading taken at the instant that this sound is heard is systolic. The diastolic pressure is then determined by reducing the pressure still further to permit the flow of blood through the artery The point at which sound can no longer be detected is equal to the diastolic pressure. Emphasize that blood pressure varies in different persons at different times and under different conditions of physical	Text and Library Books Modern Health. pp. 370, 381. Health and Safety for You. pp. 292-293.

274

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Hypertension (cont.)	and emotional activity, increasing with exertion, excitement, fear, and mental anxiety. What is the relationship of the vasoconstrictor and vasodilator nerves to blood pressure and to the supply of blood to various body parts. Point out that constriction of the arterioles, the tiny branches of the arteries that carry blood to all tissues of the body, is an important factor in blood pressure. For several reasons that are not clearly identified, the arterioles begin to tighten up, causing the passageways for blood to become smaller; consequently, the heart must work harder to push the blood through to the tissues. This added strain may cause the heart muscle to enlarge and the walls of the arteries to scar, to toughen, and to lose their elasticity. This process is known as sclerosis, or hardening of the arteries.	Text and Library Books Modern Health. pp. 370, 381. Health and Safety for You. pp. 292-293.
Coronary Heart Disease	Indicate that the heart, like any other body tissue, requires a continuous supply of oxygenated blood in order to perform the monumental task of pumping blood to all parts of the body 24 hours each day of every year during the entire lifetime of an individual. Use charts and models to illustrate that the supply of blood to the heart muscle itself is provided through a network of coronary arteries that branch out from the main artery leading from the heart, and not through the heart chambers. If a condition occurs which prevents these arteries from keeping up a sufficient supply of oxygenated blood to an area of the heart muscle even for a short time, the tissue may be destroyed (Myocardial infarcation). List several causes which may be responsible for blocking the flow of blood through the coronary arteries. 1. The hardening of the arteries, which narrows the passageway through which the blood must flow. 2. The thickening and roughening of the coronary	Modern Health. pp. 381-382. Health and Safety for You. pp. 292-293. Modern Health. pp. 380-382. Health and Safety and You. pp. 288-289.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Coronary Heart Disease (cont.)	arteries (coronary atherosclerosis), which may result from the accumulation of lipoidal deposits which are composed largely of cholesterol. This condition may actually close off the artery (coronary occlusion), or it may cause the blood to clot, forming a plug which cuts off the blood supply to the heart tissue (coronary thrombosis). Although it is known that cholesterol, a substance which is normally present in the blood, constitutes a large portion of the fatty deposits, the reasons why these complex fatty substances are deposited in the arteries, or why they collect in different parts of the body of different persons have not been determined. However, the results of several research studies suggest that the incidence of coronary heart disease may be higher among persons with cholesterol levels that are considered above normal than among those whose levels fall within the normal range.	Text and Library Books
	Discuss the importance of "collateral circulation." When some coronary arteries harden and block, nearby arteries assume the function of supplying blood to tissues which have been cut off from their former source. This process is known as collateral circulation.	Modern Health. p. 382.
	Assign a special report on what is being done by various agencies and groups to help prevent heart disease.	Health and Safety for You. pp. 293-294.
	Invite the school physician to discuss the various diagnostic procedures that are used in the examination of the heart and circulatory system. What treatments are available for heart disease? What kinds of drugs are being used for this purpose?	
	Instruct the class to evaluate the results of current re-	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Coronary Heart Disease (cont.)	search concerning the relationship of diet, weight control, exercise, and smoking to heart disease.	Text and Library Books
Cerebral Vascular Disease	Emphasize that the brain, like every other tissue, must have a continuous supply of oxygenated blood to function properly. The blood vessel system of the brain is called the "cerebral vascular system." Disorders of these vessels are referred to as cerebral vascular (cerebro-vascular) diseases. Use charts and models to review briefly the portions of the cerebral cortex that are responsible for the control of various physical and mental activities. Point out that portions of the brain are damaged when the flow of blood is cut off even for a short time. The physical and mental activities that are controlled by these damaged nerve centers will be impaired, temporarily or permanently. This condition is referred to as a stroke, or cerebrovascular accident (CVA). The degree of severity or loss of function depends upon the area of brain involvement. The nerve centers which control the body movements of one side of the body are located on the opposite side of the brain. Hence, a stroke to the left side of the brain would affect the movements of the right side of the body, and vice versa. Illustrate by means of chalkboard diagrams the different ways in which the circulation of blood to the brain may be disrupted, causing a stroke.	American Heart Association. Pamphlet Series on Cerebral Vascular Disease* U. S. Department of Health, Education, and Welfare, National Heart Institute. Cerebral Vascular Disease and Strokes (U. S. Government Printing Office, Washington 25, D. C.). Modern Health. pp. 210-212. Health and Safety for You. p. 294. *List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cerebral Vascular Disease (cont.)	1. Blood Clot. A blocking of a cerebral artery either by the formation of a blood clot (thrombus), as in atherosclerosis; or by a floating clot (embolism), which has formed elsewhere, usually in the heart. This type of stroke is painless, occurring usually during sleep.	Text and Library Books
	2. Bleeding. The breaking of the wall of a cerebral artery, causing a disruption of the blood flow and bleeding into surrounding brain tissues. This condition happens without warning, and the victim usually loses consciousness. This condition may result from high blood pressure, together with other factors; or it may result from the rupture of a thin, already weakened wall (aneurysm), which breaks much like a weakened spot on an inner tube of a tire. Aneurysms can occur at any age. They may be caused by birth defects, or by an infection.	
	3. Compression. Pressure caused by an abnormal mass of tissue upon a vessel, which may stop the flow of blood through an artery.	
	Request that a student prepare a special report on the prevention, diagnosis, and treatment of strokes. Emphasize that this condition, like other diseases of the cardiovascular system, warrants attention to weight control, proper diet, and other lifelong health practices. The use of drugs to reduce blood pressure, to absorb blood clots, or to prevent further clotting, and a sound rehabilitation program are key factors in the treatment of these diseases. Discuss the various diagnostic procedures that are used to determine evidence of a stroke (electro-encephalagram, x-ray studies of	American Heart Association. Pamphlet Series on Cerebral Vascular Disease* *List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cerebral Vascular Disease (cont.)	the arteries of the brain, and physical and neurological examination). Instruct a committee to find out what public health programs are being conducted by public and voluntary agencies to prevent cardiovascular and cerebrovascular diseases and to rehabilitate the victims of these conditions.	Text and Library Books
Varicose Veins	Report that the term "varicose" is derived from "varix", a Latin word which means "dilated or swollen vein." Varicose veins are relatively common among adults of all ages and both sexes. The veins of the legs are involved most frequently because they are subjected to greater pressure than those in other parts of the body. Explain that the exact causes of varicose veins have not been clearly determined. Heredity is thought to be an important factor; however, any situation or obstruction which causes an increased pressure within the veins of the legs will contribute to the thinning and weakening of the vein walls. Constricting garments (tight girdles, garters) and long hours of standing and of heavy lifting may also contribute to the development of varicose veins. This condition sometimes occurs during pregnancy. Mention briefly other peripheral vascular disorders. What effects do certain drugs and tobacco have on peripheral blood vessels? Emphasize that varicose veins can be relieved through prompt medical treatment by a medical doctor. The wearing of specially fitted elastic hose may help to provide added support to the overtaxed veins. Several successful treatments, including minor surgery to tie off or to remove varicose veins, can be performed.	U. S. Department of Health, Education, and Welfare. Varicose Veins (U. S. Government Printing Office, Washington 25, D. C.). American Heart Association. Pamphlet Series on Varicose Veins* Modern Health. pp. 379-380. Health and Safety for You. pp. 290-291. *List of Approved Free Supplementary Materials: Secondary

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Kidney Disease	Ask the class to cite several reasons why man cannot live without the functioning of at least one kidney. Use charts and models to review briefly the vital processes that are carried on by the kidneys. Point out that, although a filtering process involving the selective excretion and retention of various blood constituents, the kidneys remove metabolic wastes and maintain chemical and water balance in the body. About every four minutes, all the blood in the body is processed this way. When a kidney does not function properly, an excess of urea and other body wastes begin to accumulate in the blood, disturbing the acid-base balance. This condition, called uremia or uremic poisoning, causes a lowering of the alkalinity (pH level) of the blood to a point at which vital body processes no longer function (acidosis). Cite several conditions which may lead to kidney damage, such as: Nephrosis--Degeneration of the tubules of the kidney Nephritis--Inflammation of the tissues of the kidney, usually resulting from infections Calculous formation or kidney stones--Accumulation of deposits of uric acid, calcium oxalate, or phosphates in the kidneys, blocking the urine flow Discuss the extent to which kidney disease is a public health problem. Emphasize that kidney impairment may be partially responsible for many of the deaths attributed to heart disease and high blood pressure. Ask for a report on research programs that are being conducted to combat kidney disease.	Text and Library Books Modern Health. pp. 394-397 Health and Safety for You. pp. 296-299.
Cancer	Cite public health statistics relative to the incidence of cancer. Point out that cancer is a leading cause of death among all age groups. It is one of the oldest diseases in both the plant and animal kingdoms.	Modern Health. pp. 448-449. Health and Safety for You. pp. 37-40.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cancer (cont.)	Present the American Cancer Society's estimate that cancer strikes one in four persons. Of 24 persons: --Two of six will be treated successfully --One will die who could have been saved by earlier diagnosis --Three will die of types of cancer that future research must control Ask pupils, "What is cancer?" Emphasize that cancer is an uncontrolled growth of abnormal cells which crowd out and destroy healthy cells. Use charts, slides, and other visual aids to contrast a healthy cell with a cell that is cancerous. Indicate that, in a cancerous cell, the nucleus, the chromosomes which are comprised of the genetic code carrying substance DNA (desoxyribonucleic acid), and the cytoplasm are disturbed in such a manner that the cell no longer functions or reproduces in a normal manner. The cancerous cells, which are usually larger and more irregular than ordinary cells, multiply to form tumor-like masses of tissue that interfere with normal body functions. Point out that evidence seems to indicate that something happens in the DNA chromosomes of a cell which causes it to become cancerous. Since the daughter cells contain the same DNA in the chromosomes of their nuclei as the parent cells, they receive the same altered genetic code. Instead of multiplying in an orderly fashion, they, too, reproduce in an uncontrolled manner, invading and crowding out nearby tissues. When cancerous cells are confined to a specific area, they are referred to as "cancer in situ." "Metastasis" means that the cancerous cells have broken away from their original site and have spread to other body tissues.	Text and Library Books American Cancer Society. The Hopeful Side of Cancer* U. S. Department of Health, Education, and Welfare, Public Health Service. The Challenge of Cancer (U. S. Government Printing Office, Washington 25, D. C.). *List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cancer (cont.) Cause	Define the term "carcinogen" (cancer-causing agent). Ask the class to make a list of probable carcinogens that may be present in man's environment. For example: 1. Air pollution 2. Radiation from ultraviolet rays and from materials that are radioactive 3. Certain industrial and chemical agents (arsenic compounds, radium, dusts of certain ores) Instruct students to identify several ways in which persons may expose themselves needlessly to probable cancerous risks through personal choice or habit. 1. Smoking 2. Exposure to excessive amounts of ultraviolet rays of sunshine 3. Chronic irritation, such as that caused by broken teeth or poorly fitting dentures. It may lead to a precancerous condition Assign a special committee to discuss the issue, "The Virus as a Suspected Cause of Cancer."	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Cancer Cause and Prevention (U. S. Government Printing Office, Washington 25, D. C.). Health and Safety for You. pp. 36-39. 167-168. 429. Modern Health, pp. 354, 448-449.
Prevention	Emphasize that cancer prevention involves both individual and community responsibility. Community health responsibilities include programs for the reduction of air pollution, the protection of food supplies, and the safeguarding of workers in hazardous occupations. Assign a student to present a special report regarding the kinds of industrial safety programs that are being conducted on various aspects of this problem. Request students to identify several ways in which the individual may protect himself against cancer. For example, he can	U. S. Department of Health, Education, and Welfare, Public Health Service. Cancer Cause and Prevention (U. S. Government Printing Office, Washington 25, D. C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Prevention (cont.)	1. Avoid needless exposure to suspected cancer hazards 2. Schedule periodic medical checkups 3. Be aware of the danger signals or symptoms of cancer a. Unusual bleeding or discharge b. A lump or thickening in the breast or elsewhere c. A sore that does not heal d. Change in bowel or bladder habits e. Hoarseness or cough f. Indigestion or difficulty in swallowing g. Change in a wart or mole Develop a vocabulary of terms associated with cancer, such as biopsy, benign, and malignant. List the tissues of the human body in which cancerous cells develop most frequently. Refer to American Cancer Society charts which list cancer incidence by site and sex. Discuss current diagnostic practices for the early detection of cancer. What procedures are being employed by dentists to help detect early cancer of the mouth?	Text and Library Books Health and Safety for You. pp. 38-39. American Cancer Society. The Hopeful Side of Cancer. p. 12*
Treatment	Describe current practices in the treatment of cancer. Emphasize that treatment must depend upon several factors, including the type of cancer, its location, the extent to which it has metastasized, and the general health of the patient. Assign special reports on research in cancer surgery, radiation therapy, and chemotherapy. Indicate that X-rays and radioisotopes are the two general types of radiation therapy that are employed. The radiation may be beamed to cancerous tissue from a source outside the body, as with X-ray, radium, Cobalt 60, and Cesium 137, or the radiation source may be placed directly on or in the body, as with radium and other substances, such as radioactive gold, phosphorus, and iodine.	U. S. Department of Health, Education, and Welfare. Public Health Service. Treating Cancer (U. S. Government Printing Office, Washington 25, D. C.). *List of Approved Free Supplementary Materials: Secondary

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Treatment (cont.)	Discuss the relative values of chemotherapy. In evaluating the use of drugs for the treatment of cancer, indicate that drugs usually lose their effectiveness against cancer. Also, they often produce undesirable side effects. Some of the types of chemical agents that are used include hormones, cell poisons that reduce the multiplication and growth of cancer cells, and the metabolic antagonists or antimetabolites which starve cancer cells by interfering with cell activity. Cell poisons and antimetabolites may damage both healthy and cancerous cells. Explore with the class the extent of cancer quackery in the community. Discuss some of the reasons why people seek treatment from quacks. What agencies are actively engaged in fighting medical quackery?	Text and Library Books U. S. Department of Health, Education, and Welfare. Public Health Service. The Cancer Quacks. (U. S. Government Printing Office, Washington 25, D. C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Chronic Respiratory Diseases	**Present statistics to illustrate the extent to which chronic respiratory diseases are a public health problem. Indicate also the per cent of individuals whose work and recreational activities are limited because of these diseases.**	Text and Library Books

Respiratory Conditions reported in National Health Survey, United States[1]

Condition	Number	Per cent With Any Degree of Activity Limitation	Bed Disability: Days per Person With Condition Per Year
Asthma-Hay Fever	11,717,000	8.6	2.8
Bronchitis	1,913,000	9.7	5.3
Other Chronic Respiratory Conditions, Including Emphysema and Silicosis	2,174,000	17.6	9.6

"Chronic Respiratory Diseases--An Emerging Public Health Problem," American Journal of Public Health and The Nation's Health, 53 (Supplement to March, 1963), 1-34.

Tuberculosis and Health Association Pamphlet Series on Chronic Respiratory Diseases*

Report that the common chronic respiratory diseases (chronic bronchitis, pulmonary emphysema, and bronchial asthma) have similar symptoms, which include coughing, hypersecretion of mucus, shortness of breath, and obstruction of flow of air in the lungs. Point out that respiratory disorders add an extra load upon the heart, because it must work harder to force blood through damaged lungs.

Modern Health. pp. 354-357.

Health and Safety for You. pp. 303-310.

[1] "The Dimensions of the Chronic Respiratory Disease Problem," American Journal of Public Health and The Nation's Health, 53 (Supplement to March 1963), 2-3.

*List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Chronic Respiratory Diseases (cont.)	Use charts, models, and slides to explain briefly the mechanisms of breathing and to identify the respiratory structures involved in the above conditions. In chronic bronchitis, there is a narrowing of the small bronchi and bronchioles and consequent obstruction of air flow or breathing. There may also be cellular changes in the tissues throughout the mucous glands of the trachae and bronchi, as well as hypersecretion of mucus. Many persons with chronic bronchitis also have lung lesions which are characteristic of emphysema (an anatomic alteration of the lung characterized by an abnormal enlargement of the air sacs and accompanied by destruction of the aveolar wall).[1] Emphasize that these conditions usually occur in persons over 35 who have long histories of heavy cigarette smoking. An increase in these conditions is also noted among industrial workers who must inhale an excessive amount of dust. Preventive measures include the avoidance of tobacco smoking and other respiratory pollutions. Early diagnosis is of extreme importance. Bronchodilator drugs are available for treatment of these conditions; however, cellular damage cannot be repaired. Report that in asthma there is also constriction of the bronchial tubes, with decreased airflow to the lungs, shortness of breath, wheezing, coughing, and hypersecretion of mucus. These symptoms may result from spasms of the bronchial muscles, swelling of the bronchial mucous membrane, or plugs of clinging mucus that have formed in the bronchial tubes. Emphasize that asthma, unlike chronic bronchitis, seems to be	Text and Library Books Modern Health. pp. 343-349. Health and Safety for You. pp. 305-310. U. S. Department of Health, Education, and Welfare. Asthma (U. S. Government Printing Office, Washington 25, D. C.).

[1] "Chronic Bronchitis, Emphysema, and Asthma," American Journal of Public Health and The Nation's Health, 53 (Supplement to March 1963), 2-3.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Chronic Respiratory Diseases (cont.)	initiated periodically in response to various stimuli (allergens, foods, infections, emotions). A U. S. Public Health Service pamphlet reports that approximately 75 per cent of the persons who have asthma are allergic to one or more foreign substances. Identify measures for the prevention, diagnosis, and treatment of asthma. Early diagnosis by a competent physician is necessary to determine the underlying cause of bronchial hyperactivity and to begin early treatment before permanent damage occurs. Appoint a student to interview the school physician or nurse concerning such procedures as intradermal tests and methods of desensitization of the allergic individual. Ask for a report on special clinics and hospitals for asthmatic children. Appoint a committee to find out what public health programs are being conducted by official and voluntary agencies to prevent asthma. Request that the committee conduct an inquiry into community programs to eradicate ragweed, poison ivy, or poison oak.	Text and Library Books Tuberculosis and Health Association Pamphlet Series on Chronic Respiratory Disease* "Chronic Bronchitis, Emphysema, and Asthma," American Journal of Public Health and The Nation's Health, 53 (Supplement to March, 1963), 7-15. Health and Safety for You. p. 310.
Allergic Reactions	Find out how many students in the class have allergies. Point out that about one in ten persons is oversensitive to a substance which is usually harmless to most people. List common substances to which some persons are allergic, such as: ragweed pollen — feathers — penicillin poison ivy — detergents — tetanus antitoxin foods — cosmetics — (horse serum) Request students to classify each substance that they have listed as either organic or inorganic and as protein or non-	U. S. Department of Health, Education, and Welfare. Allergy (U. S. Government Printing Office, Washington 25, D. C.). U. S. Department of Health, Education, and Welfare. Hay Fever (U. S. Government Printing Office, Washington 25, D. C.).

*List of Approved Free Supplementary Materials: Secondary

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Allergic Reactions (cont.)	protein. Then explain that an allergy is essentially an abnormal or altered antigen-antibody reaction of the body cells to a specific substance (allergen). An allergen may be a protein, a fat, or a carbohydrate. Allergens can come into contact with the body by inhalation, ingestion, injection, or by touching the skin. Discuss some of the signs of hypersensitivity. An individual who is hypersensitive to a particular substance is said to be allergic to it. When he comes into contact with the substance it produces symptoms of altered body function. These symptoms may vary from skin reactions, as in food allergies and contact dermatitis (skin allergy), to anaphylatic shock, as in hypersensitivity to penicillin. In hay fever, inflammation of the eyes and the nasal passages is caused by sensitivity to a particular pollen, or to dust. Symptoms of skin allergy include "welts," itching, and skin eruptions that ooze, crust, and scale. Some reactions occur within minutes, and others do not occur for several hours. A tendency to allergies may be hereditary. Discuss the value of skin tests for detecting suspected causes of allergy. Why is self treatment a dangerous practice for such conditions as contact dermatitis (skin allergy)? Discuss the role of antihistamines and other drugs in providing temporary relief for allergic conditions. Indicate that the allergen causes the tissues involved to release histamine, a substance which stimulates tissue swelling and blood vessel dilation. Identify some of the ways in which pollen may be filtered from the air, particularly in a bedroom (air conditioning unit, or an electric pollen remover).	Text and Library Books Modern Health. p. 94. Health and Safety for You. pp. 216-218. "Delayed Hypersensitivity," Scientific American, 202 (April, 1960), 129-138. Health and Safety for You. pp. 216-218.

838

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Allergic Reactions (cont.)	Assign a student to report to the class on recent developments in allergy research. How can these findings be related to the work being done on tissue transplants? Plan with the class a school health education campaign to combat hay fever, asthma, and allergic conditions.	Text and Library Books
Diabetes Mellitus	Discuss the extent to which diabetes mellitus is a public health problem. Report that this disease still ranks among the ten leading causes of death in the United States. Health authorities estimate that there are nearly 3,000,000 cases of diabetes in this country. Of this number, approximately 1,500,000 are diagnosed, leaving about 1,500,000 who have not been diagnosed. More adults than children are diabetic; however, there are approximately 50,000 children under the age of 15 with this condition. Heredity seems to be a significant factor in the occurrence of diabetes mellitus. Obesity appears to be a factor that may cause the condition to develop more rapidly. Also, a higher case rate is reported among women than men. Analyze with students the term "diabetes mellitus." Indicate that the prefix "dia" is of Greek derivation and means "passing through." The word "mellitus" is a Latin term meaning "sweetened with honey."	Conklin, Groff. Diabetics Unknown. New York: Public Affairs Committee, 1963. pp. 4-5. Modern Health. pp. 234-235. Health and Safety for You. pp. 359-360.
Cause	Explain that diabetes mellitus is a condition in which the body's ability to metabolize sugars and starches is impaired. This is a result of the insufficient production of the hormone insulin, a substance which is necessary for the complete metabolism of glucose by the body cells. The unmetabolized sugar begins to accumulate in the blood in abnormal amounts; and, as the blood-sugar concentration exceeds the renal threshhold, excess sugar is passed in the urine. An abnormal amount of	Modern Health. pp. 234-235. Health and Safety for You. pp. 359-360.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cause (cont.)	urine is also excreted. Excessive thirst, hunger, loss of weight, fatigue, and slow-healing infections are also symptoms of diabetes mellitus. However, many individuals who may be diabetic may experience none of these symptoms. Thus the disease may go undetected during its early stages. Develop a glossary of terms, including: Hypoglycemia--An abnormally low level of sugar in the circulating blood Hyperglycemia--An abnormally high level of sugar in the circulating blood Hyperinsulinism (insulin reaction)--A condition in which the amount of sugar in the blood is reduced too suddenly, either from injection of too much insulin, or from not eating soon after an insulin injection. Symptoms include perspiring, trembling, and dizziness, followed by delirium and collapse. This condition may usually be remedied quickly by the administration of carbohydrates. Persons who are diabetics usually carry a card which bears the statement, "In case of sudden faintness, give two tablespoons of sugar dissolved in a glass of water, and call a doctor." Diabetic Acidosis--A disturbance in the normal acid-base balance of the body which may result from the burning or oxidation of excessive amounts of fats and which may progress to diabetic coma. In diabetes mellitus, the metabolism of glucose is impaired, thus requiring the utilization of body fat for energy. The end products of this metabolism may upset the acid-base balance, resulting in acidosis (a decrease in the normal alkalinity of the blood). This condition interferes seriously with vital body processes. Since some of these	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Cause (cont.)	end products are similar to vinegar, a person in a state of acidosis may possess "vinegar breath" or ketosis. Diabetes insipidus--A condition that is caused by inadequate output of the antidiuretic hormone of the pituitary gland; characterized by extreme thirst and the excretion of abnormally large amounts of urine. This disease is not related to diabetes mellitus.	Text and Library Books Modern Health. p. 227.
Detection and Treatment	Use charts and models to identify the portion of the pancreas (islands of Langerhans) which is responsible for the secretion of the hormone insulin. Invite the school nurse to discuss and to demonstrate various screening procedures that are used to help diagnose diabetes. Several relatively simple ways to detect the presence of sugar in the urine include the adding of a special chemical tablet to a test tube containing urine, or using a dip-stick test, in which a strip of paper containing special reagents is dipped into the urine. The presence of sugar is indicated through color changes. Quantitative blood tests are employed to determine the concentration of sugar in the blood (blood sugar level). Discuss several reasons why early detection of diabetes mellitus is important. Point out that there is no cure for diabetes at present. However, this disorder may be controlled effectively by means of a medically prescribed daily routine, including recommended diet, or diet and medication. Emphasize that some cases of diabetes can be controlled by diet alone. However, insulin injections or oral medication is usually required. Stress that oral compounds are not substitutes for insulin. Their major contribution is to stimulate those pancreas cells that are still active to produce greater	

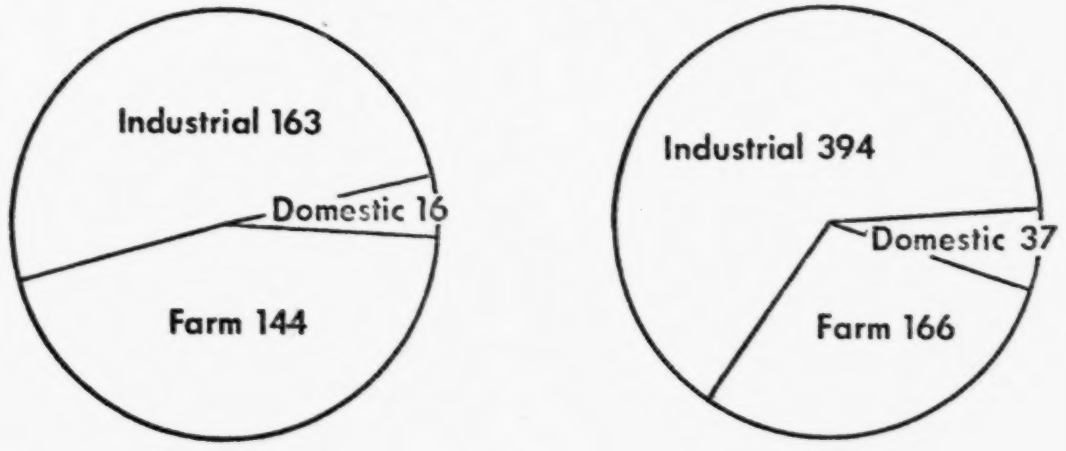
CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Detection and Treatment (cont.)	quantities of insulin. Indicate that the primary source of insulin has been the pancreas of animals (cattle and hogs). However, synthetic compounds have been discovered recently. Cite the death rate from this disorder prior to the discovery of insulin. Assign a special report on the work of Fredrick Grant Banting and others who shared in its discovery. Report that the Nobel Prize in medicine was awarded for this contribution (1923). Discuss several responsibilities which a person should accept in learning to manage diabetes. Indicate that the individual who is diabetic must learn to: 1. Understand diabetes and its possible complications. 2. Administer insulin, if medically prescribed. 3. Record accurately the results of simple urine tests. 4. Practice weight control and strict adherance to the prescribed diet. Emphasize that strict adherance to a prescribed medical regime decreases greatly the chances of a person with diabetes developing secondary complications such as eye problems, loss of peripheral circulation, and gangrene. Develop the attitude among students that today the person who is diabetic can participate in sports and other activities. Several outstanding athletes, as well as persons in other fields, are diabetic.	Text and Library Books
Research and Education	Ask a committee to contact the Diabetes Association and the health department to find out the kinds of mass screening and educational programs that are being conducted in the detection and treatment of this ailment.	American Diabetes Association, Pamphlet Series* *List of Approved Free Supplementary Materials. Secondary.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Research and Education (cont.)	Ask for a report on recent research findings concerning the prevention, detection, and cure of diabetes mellitus. Assign a report on the research activities that are being conducted by the National Institutes of Health and by other agencies of the U. S. Public Health Service.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Highlights of Research 1959: Progress in Arthritis and Metabolic Diseases (U. S. Government Printing Office, Washington 25, D. C.).
ENVIRONMENTAL HEALTH PROTECTION Sanitation Milk Control	Ask the class to suggest several reasons why controls to safeguard milk are important in disease prevention. Indicate that milk is an excellent culture medium for pathogenic organisms and that milk has been responsible in the past for the transmission of a number of diseases, including bovine tuberculosis (rare in the U. S., but relatively common in other parts of the world), undulant fever, scarlet fever, diphtheria, septic sore throat, typhus, and infantile diarrhea. Enumerate some of the possible ways in which milk may become contaminated. Evaluate methods used to safeguard milk. These include control of the 1. Transmission of bovine diseases through periodic inspection of milk producing animals. 2. Transmission of human diseases through periodic examination of the individuals who handle milk. 3. Sterilization of all equipment and containers which come into contact with milk. 4. Inspection of dairies and of milk processing facilities. 5. Destruction of pathogens by heat. Sterilization. This method is unsatisfactory because the high temperatures that would be required	U. S. Department of Health, Education, and Welfare, Public Health Service. Milk Ordinance and Code (U. S. Governmane Printing Office, Washington 25, D. C.). Consult a college textbook on the Bacteriology of Milk. Modern Health. pp. 411-412. Health and Safety for You. p. 264.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Milk Control (cont.)	for the destruction of all the organisms contained in milk would tend to destroy the vitamin content and flavor. Pasteurization: This method consists of the increasing of temperatures sufficiently high to destroy all disease producing organisms without altering significantly either the vitamin content or the taste. The process involves increasing the temperature of milk to about 145-150 degrees Fahrenheit for 30 minutes and then cooling to 55 degrees or below; or increasing the temperature to 162 degrees Fahrenheit for 15 seconds and then cooling rapidly.	Text and Library Books
	Ask students, "What is the significance of milk grading?" Explain that the U. S. Public Health Service standards for this purpose are based on the accepted premise that the bacterial count of the milk and hygienic conditions under which it was produced are indices of its sanitary quality. List and discuss the various grades of raw and pasteurized milk as established by the U. S. Public Health Service Milk Ordinance and Code (1939).	U. S. Department of Health, Education, and Welfare, Public Health Service. Milk Ordinance and Code (U. S. Government Printing Office, Washington 25, D. C.)
	Certificated Milk--Raw. This is unpasteurized milk which is produced in accordance with the requirements of the American Association of Medical Milk Commissions. In addition to establishing a maximum standard bacterial count level for the milk, these regulations deal with the sanitary condition of barnyards and dairy buildings, sterilization of the utensils used in the handling of milk, periodic examination of the cows, and examination of the individuals who handle milk.	Consult the Milk and Dairy Inspection Division, County Health Department, concerning county regulations pertaining to the grading of milk.
	Grade A--Raw Milk. Unpasteurized milk which exceeds the standard bacterial count for certified milk and which is	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Milk Control (cont.)	produced in accordance with certain sanitary regulations of the U. S. Public Health Service Ordinance. Grade B--Raw Milk. This is unpasteurized milk which does not meet the requirements for grade A raw milk. Grade C--Raw Milk. This is unpasteurized milk which does not meet the requirements for grade B raw milk. Certificated Milk--Pasteurized. This is certificated raw milk which has been pasteurized and bottled in conformance with the Milk Ordinance and Code; it must not have a bacterial count which exceeds the standard for grade A pasteurized milk. Grade A--Pasteurized Milk. This is grade A raw milk which has been pasteurized and bottled in conformance with the standards set forth for grade A pasteurized milk. Grade B--Pasteurized Milk. This is pasteurized milk which does not meet the requirements for grade A pasteurized milk. Grade C--Pasteurized Milk. This is pasteurized milk which does not meet the requirements for grade B pasteurized milk. Ask students to find out what grades of milk may be sold in the community. Invite a public health officer from the Milk and Dairy Inspection Division, County Health Department, to discuss its regulations concerning milk sanitation. Request students to report what grades of milk are used for canned or powdered milk. Ask the class to cite several reasons	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Milk Ordinance and Code (U. S. Government Printing Office, Washington 25, D. C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Milk Control (cont.)	why the boiling of milk may be effective from a hygienic standpoint but is otherwise unsatisfactory.	Text and Library Books
	Discuss and demonstrate some of the methods that are used by public health authorities to determine the sanitary quality of milk. For example, the Methylene Blue Reaction Time in Milk (Reductase) Test can be administered rapidly. The rate of decolorization of the methylene blue which is added to the milk indicates the number of organisms which it contains. The procedure is as follows:	"Microbiology in Introductory Biology," The American Biology Teacher, 22 (June, 1960), 382.
	Prepare a dilute solution of methylene blue (about 1:200,000). Using samples of raw and pasteurized milk in sterile test tubes with rubber stoppers, add sufficient dye to give a faint blue color. Record time of disappearance of blue color. (Preferably incubate tubes in a pan of water at 37 degrees Centigrade, and invert the tubes at half hour intervals).	U. S. Department of Health, Education, and Welfare, Public Health Service. Facts About Pasteurization of Milk (U. S. Government Printing Office, Washington 25, D. C.).
	Ask students to evaluate the advantages and disadvantages of milk pasteurization.	
	Appoint a committee to determine the influence of temperature upon the keeping quality of milk. Ask the students to test by means of agar plates the extent of bacterial growth in various dilutions of milk (1:10, 1:100, 1:1,000, and 1:10,000) at different temperatures. Samples can be placed in such locations as a refrigerator, locker, and incubator. Instruct the committee members to count the number of bacterial colonies, or to calculate the bacterial count per cubic centimeter of milk.	Consult a laboratory manual on bacteriology for further details regarding this exercise.
Water Contamination	Present an overview to illustrate that water contamination and the shortages of clean water are among the most critical public health problems facing the nation today and in the future. For example, the U. S. Department of Health, Education, and	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	Welfare has reported the following:[1] 1. The population of the United States was 76 million in 1900, but will increase to 214 million by 1970, and to 260 million by 1980. 2. Domestic and municipal water needs now exceed 22 billion gallons daily. This demand is seven times that of 1900 and will be twelve times the 1900 level, or 37 billion gallons, in 1980. Bathrooms, special kitchen appliances, and swimming pools require more water for family use than a generation ago. THE THREE CONSUMERS OF WATER  [1]U. S. Department of Health, Education, and Welfare, Public Health Service, Protecting Our Water Resources--The Federal Water Pollution Control Program, 1962 (U. S. Government Printing Office, Washington 25, D. C.), p. 1-4.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. The Living Waters (U. S. Government Printing Office, Washington 25, D. C.). U. S. Department of Health, Education, and Welfare, Public Health Service. Protecting Our Water Resources--The Federal Water Pollution Control Program. 1962 (U. S. Government Printing Office, Washington 25, D. C.).

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	3. By 1980, industry, the largest user of water, will require more than twice the 160 billion gallons daily that it now uses. Farms now requiring 141 billion gallons a day for irrigation will need approximately 166 billion gallons daily by 1980. 4. By 1980, the United States will need 600 billion gallons of usable water each day, but will have only 515 billion gallons on a dependable daily basis coming from its streams, reservoirs, and other water sources.	Text and Library Books Health and Safety for You. pp. 432-433.
	Request students to list the principal sources of fresh water in California. Discuss the normal water cycle. Point out the various ways in which water may become contaminated between the time that it reaches the earth's surface and is finally drawn back into the atmosphere as vapor to repeat the cycle again. For example: Atmospheric waters--(rain and snow). These waters may contain large numbers of bacteria, depending upon the amount of dust in the air. Surface waters--(runoff from rain and melted snow). As soon as the waters touch the ground, they become contaminated by the micro-organisms in the soil. Stored waters--Storage tends to decrease the number of bacteria in water through forces which tend to promote self-purification; namely, sedimentation, activities of other organisms in the water, ultraviolet light, temperature, and the availability of food supply. Ground waters--As a result of the filtering action of the soil, ground waters are relatively free of bacteria. Deep wells are less apt to become contaminated than are	U. S. Department of Health, Education, and Welfare, Public Health Service. The Living Waters (U. S. Government Printing Office, Washington 25, D. C.). "Pollution and Wildlife," California's Health, 21 (July 1, 1963), 1.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	shallow wells. However, proper care must be taken in the selection of the site and in the construction of a well to avoid contamination from surface water and sewage. The water from a well usually has a high mineral content and is therefore "hard."	Text and Library Books
	Discuss the extent to which different areas of Southern California depend upon each of the above water sources. Request a committee to check with the water department to find out the sources of drinking water for Los Angeles residents.	
	Assign a research paper on the evaluation of developments in the conversion of sea water to drinking water. Ask students to identify some of the most promising methods in terms of cost, practicality, and other factors. What experimental plants are now in operation? What process is being used to desalt water?	
	Discuss some of the ways in which water may become contaminated or polluted. Water is said to be polluted when it contains substances which make it unfit for drinking. The U. S. Public Health Service lists two main types of pollution:[1] 1. Wastes a. Sanitary sewage includes everything that enters the drains of a city and its sewer system. This is the used water from toilets, bathtubs, and sinks, and from restaurants, hotels, laundries, hospitals, mortuaries, and other establishments.	U. S. Department of Health, Education, and Welfare, Public Health Service. The Living Waters (U. S. Government Printing Office, Washington 25, D. C.). Modern Health. pp. 409-410. Health and Safety for You. pp. 433-434.

[1]U. S. Department of Health, Education, and Welfare, Public Health Service, The Living Waters (U. S. Government Printing Office, Washington 25, D. C.), p. 5.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	b. Industrial wastes are the acids, chemicals, salts, oils, greases, and animal and vegetable matter discharged by factories, canneries, meat and poultry processing plants, oil fields, installations, and mines. c. Agricultural wastes consist of the numerous insecticides, herbicides, and pesticides used in spraying or dusting crops and nuisance plants. These modern "poisons" all too often wash into streams in the same manner as silt does. 2. Silt The second form of pollution is silt. Soil changes blue rivers to muddy brown and fills reservoirs. When a hard rain falls, the water carries the soil into the nearest stream. As a result, both land and water are harmed. Enumerate some of the effects of water pollution.[1] Point out that: 1. Outbreaks of virus hepatitis have been traced to oysters and clams that were harvested in polluted water. 2. In the Southwest, salt brine is limiting the public water supply and contaminating water which otherwise could be used by agriculture and industry. 3. In suburbs all over the country, detergent foam, the	Text and Library Books Health and Safety for You. pp. 433-434. U. S. Department of Health, Education, and Welfare, Public Health Service. The Struggle for Clean Water (U. S. Government Printing Office, Washington 25, D. C.).

[1] U. S. Department of Health, Education, and Welfare, Public Health Service, The Struggle for Clean Water (U. S. Government Printing Office, Washington 25, D. C.). p. 1.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	product of home laundries and dishwashers, is a familiar sight on the surfaces of rivers and streams. 4. Each year, many miles of streams in every state are becoming contaminated. Consequently, they can no longer be used for recreation and millions of fish are being killed. 5. In many cities, drinking water is becoming less and less palatable because of pollutants in the water supply. 6. In every city, bathing beaches, picnic areas, and boating marinas are less attractive and less safe for the people to use.	Text and Library Books
	Report that the presence of sewage in the water supply may provide a means for transmission of intestinal diseases, such as typhoid, cholera, and dysentery. The organisms that cause these diseases are contained in the intestinal wastes of infected persons. The presence of other types of contamination, such as radioactive material, may add still another hazard to the water supply. What problems might arise in an area that was flooded by an overflowing river, or from a large dam which had broken?	U. S. Department of Health, Education, and Welfare, Public Health Service. The Struggle for Clean Water (U. S. Government Printing Office, Washington 25, D. C.).
	Evaluate some of the methods of waste disposal that are used in both urban and rural areas in an effort to control water pollution. Assign students to prepare diagrams explaining various methods of sewage disposal. Discuss the methods by which dirty sewage water is treated in modern plants before being discharged into natural waterways. According to the U. S. Public Health Service, the most efficient method utilizes two processes, known as primary and secondary treatments. These consist of a physical separation and screening of the	U. S. Department of Health, Education, and Welfare, Public Health Service. The Living Waters (U. S. Government Printing Office, Washington 25, D. C.). Health and Safety for You. p. 433.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	water, followed by a treatment utilizing bacteria. During primary treatment, the water is passed through a screen which removes large objects, such as sticks and rags. Next, the water flows slowly through a grit chamber which allows sand, gravel, and other heavy objects to settle. The water then flows into a large settling tank, where it stands for a considerable time to allow the solids in the waste matter to settle at the bottom as "sludge" or to rise to the top as "scum." Secondary treatment depends upon the action of bacteria to remove dissolved organic matter from the water. Most plants have a trickling filter for this purpose. This consists of a bed of coarse stones upon which the bacteria grow. As the water trickles down through the stones, the bacteria perform their work. An alternate treatment, in which the action of bacteria is hastened by exposing the sewage to atmospheric oxygen, is called the activated sludge process. The water may then be sent to another settling tank to stand while the remaining solids collect on the bottom. Finally, chlorine gas is added, and the water is discharged into the river or lake with about 85 per cent of its pollution removed. Another method utilizes a natural process, in which waste materials are introduced into large, shallow, man-made lakes. Here a balanced system of algae and bacteria breaks down the pollutants. Ask for a committee to visit one of the city's sewage treatment plants and to report to the class regarding its methods.	Text and Library Books

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	Cite several shortcomings of waste treatment plants. Report that: 1. These plants are still not efficient enough to remove all wastes, and there are still large amounts of pollution entering streams and rivers. 2. Procedures of waste treatment are based mainly on bacterial action, which is ineffective in removing many of the new pollutants that are found in waste water today. The procedures are relatively unsuccessful in removing plastics, detergents, nylon, and similar fibres, pesticides, herbicides, medicines, and other mineral and chemical substances, such as acids produced by mine drainage and radioactive substances. Discuss the problems of large factories in disposing of industrial wastes. How do the wastes affect fish and game in areas where they enter streams and rivers directly? Appoint a committee to evaluate the processes of distillation and filtration and the use of water softener resins in purifying water. Ask the students to test the effect of water from different sources on the sudsing properties of soap. What effect did water purification have on the sudsing? Ask students to collect newspaper articles which describe progress toward the elimination of detergents as a water pollutant. Prepare numbered bottles containing tap water, water and acid, water and detergent, water and oil, stream water, and pond water. Ask students to determine which samples are contaminated and which are not and to identify the contaminant. A	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. The Struggle for Clean Water (U. S. Government Printing Office, Washington 25, D. C.). California's Health--Biennial Report Edition, 19 (December 1, 1961), 42.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	comparison of the tap water with the water and acid will illustrate that clearness is not an adequate criterion of purity. Describe some of the types of tests that are performed by health authorities to monitor the purity of the water supply. These include: 1. Chemical Analyses--To determine the presence of organic and inorganic chemical pollutants. 2. Turbidity Analyses--To determine the cloudiness or muddiness of the water. 3. Biological and Planktonic Analyses--To determine the presence of micro-organisms and objectionable algae and fungi. 4. Bacteriological Analyses--To evaluate the number and type of bacteria present. Request students to identify the safeguards that they would employ when obtaining water from a river or stream while on a camping trip. Ask for a report describing the activities conducted by the county health department to assure the safety of public and semi-private swimming pools and public beach areas. Demonstrate the use of a pool-testing kit for monitoring a family swimming pool. Appoint a student to write to the State of California Water Pollution Control Board concerning what is being done to control water pollution.	Text and Library Books Consult the Los Angeles Branch Public Health Laboratory, California State Department of Public Health.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Water Contamination (cont.)	Trace with students the history of federal legislation pertaining to water pollution. Report that the first Water Pollution Control Act (Public Law 845, 80th Congress) was passed in 1948. The Blatnick Act (Public Law 84-660), which was enacted in 1956, was the first comprehensive federal water pollution act. It improved and expanded the 1948 act. In 1961, Congress passed two amendments to the 1956 act (Public Law 87-88) which included these important additional provisions: 1. Increased federal support for construction of municipal waste treatment facilities. 2. Strengthened federal enforcement powers. 3. Intensified research programs toward more effective methods of pollution control. 4. Increased federal support of state and interstate pollution control programs. 5. Increased water storage facilities through the planning and building of federal reservoirs to maintain water quality during periods of low flow.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Protecting Our Water Resources--The Federal Water Pollution Control Program, 1962 (U. S. Government Printing Office, Washington 25, D. C.).
Pest Control and the Use of Pesticides	Enumerate the environmental health problems that are associated with pest control and the use of pesticides. Point out the damage caused by insects and other vermin each year. All the land animals on the face of the earth--man included--don't weigh as much as the earth's insects. In America alone, they cause 4,000,000 worth of damage each year. California, with more than 200 kinds of crops, spends more on insect control than	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Pest Control and the Use of Pesticides (cont.)	any other state.[1] List some of the control measures that are performed by public health authorities toward the elimination of flies, mosquitoes, rats, and other vermin. Ask for a report on the contributions of entomology to pest control. Hold a panel discussion on the advantages and disadvantages of the use of pesticides. Ask students to evaluate the opinions of authorities in this field. For example, the following statement was prepared by the staffs of the New York State College of Agriculture, Ithica, and the New York State Agricultural Experimental Station at Cornell University:[2] Do we really need pesticides? This is hardly a debatable question. We not only need them, we are highly dependent on them. Without pesticides we would eat very poorly indeed in terms of both quality and quantity. Millions of people are alive today because of the use of DDT and other modern pesticides in suppressing insect-transmitted diseases of man, such as malaria, yellow fever, and typhus...But if we use these materials, we	Text and Library Books Los Angeles County Health Department. History and Functions of the Los Angeles County Health Department. California Agricultural Experimental Extension Service. Control of Household Insects and Related Pests. Division of Agricultural Sciences, University of California, 1961. 42 pp.

[1]California Agricultural Experimental Extension Service, Control of Household Insects and Related Pests (Division of Agricultural Sciences, University of California, 1961), p. 42.

[2]New York State College of Agriculture, Ithica, and the New York State Agricultural Experimental Station, Geneva, units of the State University, at Cornell University, Facts on the Use of Pesticides, (October 1962), pp. 1-3.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Pest Control and the Use of Pesticides (cont.)	cannot hope to be free from all possible objectionable consequences of their use. One such problem, for example, is the traces of pesticides that unavoidably may persist in or on some of our food crops beyond harvest...According to the best scientific evidence available, the traces that are allowed--and these are fixed by the Food and Drug Administration--constitute no known hazard. This question of allowable levels involves the "tolerance" concept...All chemicals have their safe and toxic levels...As currently used in routine operations to control mosquitoes and pests of our farms and forests, the hazards to wildlife are generally considered to be small. In the past, greatest losses have occurred in special eradication programs, especially where high dosages of pesticides were used more or less indiscriminately over large areas. Ask the class to read and to evaluate Rachel Carson's book, Silent Spring.[1] Invite a resource person to discuss the extent to which pesticide residues cause a public health hazard to the food and water supply. Analyze the report on the use of pesticides by Frank M. Stead, Chief, Division of Environmental Sanitation, California State Department of Public Health.[2] Review the work of government laboratories in the study of animal-feed spray residuals analysis of other types of food,	Text and Library Books "Pollution and Wildlife," California's Health, 21 (July 1, 1963) 1-3.

[1] Rachel Carson, Silent Spring. Boston: Houghton Mifflin, 1962, 368 pp.

[2] "Pollution and Wildlife," California's Health, 21 (July 1, 1963), 3.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Pest Control and the Use of Pesticides (cont.)	and uses of water screening tests. For example, scientists conducted many complex tests of cranberries during the study of the effect of aminotrizole in 1959. Point out that every pesticide must undergo extensive laboratory tests before it can be sold. These tests include use of the pesticide with thousands of laboratory animals over a designated period of time. Food and Drug Administration tolerance levels are based on this information and represent an amount that meets all safety requirements.	Text and Library Books California's Health--Biennial Report Edition, 19 (December 1, 1961), 58.
	Report the occupational health implications in the use of pesticides. The Bureau of Occupational Health announced that:[1] Illness and death from organic phosphate pesticides is the greatest occupational health problem in agriculture. Reports of occupational disease from this use have tripled since 1954.	Darling, William J., and Gwen Lam. Food and Science Today and Tomorrow. New York: Public Affairs Committee, 1963. 22 pp.
	Develop a list of precautions pertaining to the use of pesticides in the home.	California Agricultural Experimental Extension Service. Control of Household Insects and Related Pests. Division of Agricultural Sciences, University of California, 1961. p. 6.
Air Pollution	Ask students, "What is air pollution and to what extent is it a public health problem?"	

[1]"Bureau of Occupational Health," California's Health--Biennial Report Edition, 19 (December 1, 1961), 58.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Air Pollution (cont.)	Formulate through class discussion a definition of the term "pollutant." Emphasize that a pollutant may be any substance which is harmful to man and that most pollutants are man-made. Point out that air pollution results from the tons of partially burned waste products of fuel and debris which enter the atmosphere daily from automobiles, industries, incinerators, and other sources. There are more than 50 pollutants discharged as dust, soot, and smoke and as the vapors and fumes of noxious gases, including carbon monoxide, nitrogen oxides, sulphur oxides, and ozone. Illustrate by means of a Bunsen burner the formation of soot as a product of incomplete combustion. Close the air holes of the burner to produce a luminous flame, and hold the bottom of a porcelain dish in the flame. The black deposits that collect on it are the result of the incomplete burning of a hydrocarbon--in this case, the gas from the Bunsen burner. Then change the flame to nonluminous, and expose the sooty part of the dish to the hottest part of the flame. The carbon will burn off, indicating that now complete combustion has taken place. Cite examples of extremely serious air pollution, such as the lethal smog which settled on Donora, Pennsylvania, in 1948 and on London in 1952, causing numerous deaths. In London, the average rate of about 2,000 deaths per week rose to nearly 5,000 during an acute smog episode. The concentrated smog was responsible for the deaths of many persons with heart and lung ailments.[1]	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Troubled Air (U. S. Government Printing Office, Washington 25, D.C.). Modern Health. p. 355. Health and Safety for You. pp. 423-425. Munzer, Martha E., and Paul F. Brandwein, Teaching Science Through Conservation. New York: McGraw-Hill, 1960. p. 266.

[1] U. S. Department of Health, Education, and Welfare, Public Health Service, Troubled Air (U. S. Government Printing Office, Washington 25, D. C.), p. 24.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Air Pollution (cont.)	Discuss climatic and geographical factors influencing the concentration of smog. Identify the chief factors that are contributing to the air pollution problem in Los Angeles. These include: 1. A heavily concentrated population. 2. A heavy emission of hydrocarbons (mostly unburned gasoline) and oxides of nitrogens. When first emitted, these substances are neither visible nor irritating. 3. A thermal or temperature inversion. A ceiling of warm temperature holds these substances near the ground. When hydrocarbons and oxides of nitrogen react with sunlight for a short period, smog is produced as a result of the creation of ozone and other chemicals. Request a report on the work of A. J. Haagen-Smit, who discovered the "hydrocarbon theory of smog formation." Indicate that air pollution may be divided into two major classes: 1. The Los Angeles type, which results from the incomplete combustion of petroleum products (hydrocarbons) upon exposure to strong sunlight. 2. The London type, which results from the incomplete combustion of coal. In cities where coal is burned for heating and industrial uses, sulfur oxides are a significant air pollutant.	Text and Library Books Health and Safety for You. pp. 423-425. Los Angeles County, Air Pollution Control District. What We're Doing About Smog. "Air Pollution and Public Health," Scientific American, 205 (October, 1961), 49-57. "Control of Air Pollution," Scientific American, 210 (January, 1964), 25-31.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Air Pollution (cont.)	Assign reports concerning the relation of air pollution to eye irritation, to chronic respiratory (asthma, bronchitis, emphysema) and cardiac conditions, and to cancer. Emphasize that both the hydrocarbon and sulfuric compounds of air pollution are highly irritating to the bronchi and to the tiny air sacs of the lungs. As the respiratory system becomes less efficient, the heart must work harder to satisfy the body's oxygen requirements. Assign a report on the effects of air pollution on food crops and other vegetation. Discuss the extent to which air pollution affects other factors, such as visibility, the condition of buildings and to manufactured products (rubber, nylon), and to the cleanliness of clothing. Appoint a committee to report on the procedures that are used by the Los Angeles County Air Pollution Control District to monitor air pollution. Ask the students to explain the significance of each of the three smog alert stages and to enumerate the procedures that are to be followed during each stage. Point out that four toxic substances have been selected for continuous monitoring by public health authorities as a basis for the amog alert program.	Text and Library Books Los Angeles County, Air Pollution Control District, "Research Paper No. 12, Pattern of Damage Produced in Vegetation by Smog," 1956 (Reprint) 4 pp.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Air Pollution (cont.)	RULE 156. (Adopted 6-20-55) ALERT STAGES FOR TOXIC AIR POLLUTANTS. (In parts per million of air)[1]	Text and Library Books

	FIRST ALERT	SECOND ALERT	THIRD ALERT
CARBON MONOXIDE	100	200	300
NITROGEN OXIDES	3	5	10
SULFUR OXIDES	3	5	10
OZONE	0.5	1.0	1.5

FIRST ALERT: Close approach to maximum allowable concentration for the population at large. Still safe, but approaching a point at which preventive action is required.
SECOND ALERT: Air contamination level at which a health menace exists in a preliminary stage.
THIRD ALERT: Air contamination level at which a dangerous health menace exists.

Ask for volunteers to conduct projects for the study of air pollution. A crude measure of the dust fall for a 24-hour period may be obtained by placing a container one-quarter full of water in an unprotected outdoor area, about four feet above the ground. The debris collected represents an approximate amount of the air pollution of the locality.	Los Angeles County, Air Pollution Control District. Atmospheric Pollution Tests for Students.
Ask students to report recent progress in the development of devices to cut down pollution from automobile exhausts. What legislation exists regarding the installation of such devices?	California State Department of Public Health. Experiments for the Science Classroom. Based on Air Pollution Problems. Berkeley: Bureau of Air Sanitation, 1962. 49 pp.

[1]Los Angeles County, Air Pollution Control District. Rules and Regulations, (Chapter 2, Division 20, Health and Safety Code of the State of California), pp. 36-41.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Air Pollution (cont.)	Discuss some of the devices that are used to control air pollution from industrial sources. Enumerate the methods by which the problem of air pollution is being attacked in Los Angeles. Ask students to construct a time chart showing the advances which have been made in air pollution control in this country since 1947. Cite the importance of each of the following control measures: 1. Research into the cause and control of air pollution. 2. Enforcement of laws for the control of air pollution. 3. Air monitoring. 4. Emergency warning systems.	Text and Library Books Munzer, Martha E., and Paul E. Brandwein, Teaching Science Through Conservation. New York: McGraw-Hill, 1960. pp. 266-280. Los Angeles County, Air Pollution Control District. Crossing the Smog Barrier--A Factual Account of Southern California's Fight Against Air Pollution. (Reprinted from the newspapers of Los Angeles County), 1958. 22 pp.
313 Radiation Sources	Discuss with students the extent to which exposure to nuclear radiation is a public health hazard. Indicate that:[1] Nuclear radiation is energy spontaneously released by an unstable (radioactive) nucleus to attain a more stable state. In certain cases this will result in transmutation--the changing of one element into another. Some isotopes (forms of an element having the same	Modern Health. pp. 449-454. Health and Safety for You. pp. 428-431.

[1]"Radiation Physics and Bomb Phenomenology," Civilian Defense Technical Bulletin, (Office of Civil Defense and Defense Mobilization, March 1959), p. 2.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Sources (cont.)	number of protons in the nuclei, but differing in the number of neutrons) are naturally radioactive. Also, radioactive isotopes may be artificially produced by subjecting a stable nucleus to bombardment by nuclear missiles, such as alpha particles, neutrons, or protons. Emphasize that the presence of radiation cannot be detected by the senses; consequently, a person may be seriously exposed to harmful radiation without knowing it. Identify several probable sources of radiation which may be of concern to a community: 1. Industrial and medical uses of isotopes 2. Nuclear reactor power wastes 3. Medical and dental X-rays 4. Civilian use of atomic explosives 5. Mining and processing of radioactive bearing ores 6. Fabrication of nuclear fuels 7. Fallout from weapons testing (Fallout causes two types of radiation: The initial radiation which occurs at the time of the nuclear explosion and residual radiation or "fallout". Fallout radiation can affect populations hundreds or even thousands of miles away.) Ask students to list on a chart the various types of radiation and to identify the significant hazards of each. For example:	Text and Library Books "Radiation Control Problems Faced by a Large City," American Journal of Public Health and The Nation's Health, 53 (June, 1963), 882-889.

CONTENT	ACTIVITIES AND INFORMATION					RESOURCES
Sources (cont.)	Type of Radiation	What Is It?	What Will Provide A Shield?	Means of Detection	Hazards	Text and Library Books U. S. Department of Defense. The Effects of Nuclear Weapons (U. S. Government Printing Office, Washington 25, D. C.).
	Alpha Particle	Helium Nucleus Mass 4 Charge +2	Skin or thin layer of any material	Special laboratory instruments	Little external hazard. Extreme hazard when it enters the body	
	Beta Particle	Electron Mass 0 Charge Negative	One-half inch of any solid material	Geiger counter, film badge, dosimeter	Moderate internal and external hazards, causing burns to the skin	Health and Safety for You. pp. 431-432
	Neutron	Mass 1 Charge Neutral	Water, paraffin	Special laboratory instruments	From sources external to the body	
	Gamma Ray	Similar to x-ray. No mass or charge	Lead, other heavy metals, concrete, tightly packed soil	Geiger counter, ion chamber, film badge, dosimeter	From sources external to the body	

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Sources (cont.)	Indicate that the best protection from any type of radiation is distance from the source. Other factors affording protection are appropriate shielding, as cited in the above table, and allowance of time for decay, especially in the case of isotopes with a short half-life. Discuss the term "half-life" (the time required for a quantity of a radioactive substance to lose half of its activity). Use the following illustrations to help explain its meaning: Stack eight books on a table to represent the amount of radioactivity in an atom. Remove four books from the stack to represent the amount of radioactivity remaining at the end of one half-life. Then remove two more to represent the amount remaining at the end of two half-lives, and so on.	Text and Library Books
	Exhibit some of the types of instruments that are used to measure radiation. Appoint a committee to demonstrate with a Geiger counter the shielding properties of cardboard, aluminum, soil, wood, and lead against a radioactive source. Discuss the types of shielding devices that are used in medical and dental X-ray equipment. What kinds of safety devices are used by industry and research in the handling of radioactive materials?	"Radiation Physics and Bomb Phenomenology," Civilian Defense Technical Bulletin (Office of Civil Defense and Defense Mobilization, March, 1959), 1-8.
	Request students to develop a glossary of terms, including the following: Curie (c) - A measure of the strength of a radioactive source. It is the amount of radioactive material that undergoes 3.7×10^{10} disintegrations per second.	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Sources (cont.)	Roentgen (r) - Quantity or dose of radiation. The exact definition is based on the amount of ionization produced in the atmosphere by X or gamma radiation. Roentgen Equivalent Man (rem) - A unit of the absorbed dose of any radiation which has the same biological effect as a rad of "standard" X-rays. Rad - A unit of absorbed dose, or a measure of radiation exposure which amounts to 100 ergs of energy imparted to one gram of matter by any ionizing radiation of irradiated material. Ion - An atomic particle, atom, or group of chemically combined atoms that have an electric charge, either positive or negative. Ionization - The process by which a neutral atom or molecule acquires either a positive or negative charge. A high-speed particle passing through matter may cause the atom or molecule to divide into positive and negative parts called ions, destroying the electrical balance.	
Effects	Discuss the possible effects of nuclear radiation on the individual. What effects can nuclear radiation have on future generations? Point out that radiations interact with body elements to cause damage to body cells. The dose is measured in roentgen (r) or roentgen equivalent man (rem).	U. S. Department of Defense. The Effects of Nuclear Weapons. (U. S. Government Printing Office, Washington 25, D. C.).

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects (cont.)	Since nuclear radiations are atomic in nature, they interact with matter on an atomic basis. Fundamentally, these radiations produce ionization of atoms, or actually mutate the atom itself. By ionization is meant the displacement of one or more of the surrounding electrons from their atomic orbits, causing an otherwise neutral atom to become a charged particle. Mutation is caused when certain of the atomic particles combine with the nucleus itself, causing the basic characteristics of the atom to change. Since a body cell is made up of a great number of atoms, the cell itself is affected by radiation. This effect or damage is evidenced in one of two ways: (1) the function of the cell may be altered; and (2) the function of subsequent cell progeny may be altered.[1] Discuss some of the symptoms of radiation sickness. Emphasize that the degree of illness depends upon the amount of radiation received by the body. The parts affected by radiation and resulting pathology are:[2] EARLY EFFECTS The Blood System. Antibody constituents are destroyed or decreased in such numbers that diseases may more easily attack the body. The bacteria-scavenging quality is lost, thus allowing secondary infection to take hold. Blood clotting is reduced, which could allow hemorrhaging.	Text and Library Books

[1]John C. LeDoux, Nuclear Radiation--The Effect on the Individual (Civil Engineer Corps, United States Navy), p. 2.

[2]Ibid., pp. 2-3.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Effects (cont.)	The Gastro-Intestinal Tract. Depending upon the size of the dose, this may cause nausea, ulcers, diarrhea, or loss of body fluid. Skin. The inner layer is made up of rapidly dividing cells, which are easily damaged. This may lead to dermatitis, or cancer of the skin. DELAYED EFFECTS Shortening of life span about 30 per cent for doses in the lethal range. Production of malignant tumors, dermatitis, and leukemia. Anemia and cataracts. Damage to genes. Production of defective children in future generations.	Text and Library Books
Control	Request a report concerning the biological effects of radiation after the bombings of Hiroshima and Nagasaki. List several decontamination methods that may be useful in neutralizing the effects of radioactive substances. Discuss efforts of city, state, and federal health agencies to safeguard the population against needless exposure to radiation hazards. Appoint committees to find out to what extent the following activities are performed in this community: 1. Inspection of medical and dental X-ray equipment for proper shielding to minimize radiation exposure. 2. Zoning of radiation installations, which limits the radiation levels and quantities of radioactive material that can be used or stored in residential, commercial, and industrial areas.	U. S. Department of Health, Education, and Welfare. Highlights of Public Health Service Activities in Radiological Health, 1958-1962 (U. S. Government Printing Office, Washington 25, D. C.).

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Control (cont.)	3. Special routing of radioactive materials that are transported through heavily populated areas. 4. Protection of the consumer through restricting the sale and distribution of commercial products containing excessive amounts of radium mixtures. These may be used in self-luminous devices. 5. Monitoring the radioactivity of foods, drinking water, and atmospheric fallout. Request special reports concerning the biological effects of exposure to Cesium-137, Carbon-14, Iodine-131, and Strontium-90. To what extent are these substances contained in the food supply?	Text and Library Books "Foods and Fallout," Borden's Review of Nutrition Research, 23 (January-March, 1962), 1-20. "Fallout and the U. S. Diet," Consumer Reports, 27 (March, 1962),139-143.
FUTURE HEALTH CHALLENGES	Ask each class member to identify from a survey of newspapers and current periodicals the most pressing public health problems that will face out nation in the years ahead. Ask the class to evaluate existing community health resources in terms of these needs (increased life span, expansion and mobility of population, urbanization, and the like).	Modern Health. p. 455. Health and Safety for You. pp. 417-438.
Unsolved Health Problems Identification	Discuss new diseases and public health hazards that were virtually unknown or did not exist 50 years ago. To what extent has research in medical science and in public health contributed to the solution of these problems? Ask the class, "Why must new ways be found for dealing with drug resistant organisms?" Request the class to identify the most pressing, unsolved health prcblems in relation to: 1. Prevention and control of disease 2. Environmental health hazards 3. Sociological aspects of public health, such as adequate housing	

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Solutions	Discuss the extent to which ecology, epidemiology, microbiology, biochemistry, biophysics, the behavioral sciences, and other fields have contributed to the solution of health problems. Ask the class to evaluate the progress that man has made in identifying the most desirable conditions for health. To what extent has man applied this knowledge to his daily living? Ask for a report on the future challenges of space medicine.	Text and Library Books
HEALTH CAREERS Existing	Invite the school counselor to speak on career opportunities in the health occupations. Discuss the levels of skill and educational preparation and the interests and aptitudes that are associated with these occupations. Arrange a health careers day during which speakers from professional organizations and colleges can discuss employment opportunities in the health sciences. Request students to prepare a chart illustrating the wide range of skills and abilities that are required in health occupations. Ask each student to make a detailed report concerning an occupation in this field. Suggest that, in addition to utilizing library sources, students interview persons already employed in these occupations to learn about: 1. Educational preparation 2. Personality traits 3. Satisfactions and rewards 4. Working conditions 5. Opportunities for advancement	Los Angeles City School Districts, Evaluation and Research Section. Basic List of Occupations. U. S. Department of Health, Education, and Welfare. A List of Public Health Service Material on Health Careers (U. S. Government Printing Office, Washington 25, D. C.). Modern Health. pp. 466-470. Health and Safety for You. pp. 141-149. National Health Council. Health Careers Guidebook.

UNIT V

PROGRESS IN PUBLIC HEALTH

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Existing (cont.)	Point out scholarship opportunities which are available through professional and voluntary organizations, as well as through other sources.	Text and Library Books Los Angeles City School Districts, Evaluation and Research Section. Scholarships Manual.
Projected	Ask students to scan the want ad sections of newspapers and professional journals and to consult university catalogs to learn of new types of health occupations. Discuss new career challenges in research and technology associated with man's quest to discover more about himself and to explore and control his environment.	National Health Council. New Careers in the Health Sciences.

III. EVALUATION

Planned evaluation is an integral part of every learning activity. Student progress in achieving the purposes of this unit can be determined in such ways as the following:

A. Tests and Inventories

1. Analyses of Community Health Problems. Students are asked to react to a community health problem in terms of what they consider to be its nature and scope and to propose solutions to the problem.
2. Interpretations of Data Concerning Community Health Problems. Tables and charts are presented to illustrate specific health problems, and students are requested to formulate conclusions based on the data.
3. Applications of Principles. Questions of the "What would you do?" type are asked to test the ability of students to apply knowledge of health principles to everyday situations.
4. Nature-of-the-Proof Tests. A situation is described and a number of conclusions are listed which pertain to it. On the basis of the evidence presented, students are requested to support or to refute each conclusion as:

   A fact
   An assumption
   An untrue statement

5. Sentence Completion Tests. Students are instructed to complete statements such as the following: "The most pressing public health problem facing our nation today is _____."
6. Questionnaires and Checklists on Health Attitudes.
7. True-False Statements on Health Knowledge and Understanding.
8. Multiple-Choice Tests on Health Knowledge, Attitudes, and Practices.
9. Matching Items Tests on Health Knowledge and Practices.
10. Essay Type Examinations on Health Knowledge and Attitudes.

III. EVALUATION (cont.)

B. Classwork Performance

1. Oral and Written Reports.
2. Participation in Group Work and Class Discussion.
3. Scope of Projects Undertaken.

C. Student Self-Appraisal

1. Checklists and Rating Scales.
2. Self-Appraisal Charts and Records.
3. Student Surveys of Environmental Health Conditions.

D. Teacher Observation of Health Behavior

1. Recorded Incidents of Student Behavior Both In and Out of the Classroom.
2. Interviews and Conferences.
3. Rating Scales and Checklists.
4. Teacher Surveys of Environmental Health Conditions.

UNIT VI

CONSUMER HEALTH PROTECTION

I. SCOPE OF THE UNIT

Space age communications methods and the techniques of motivational psychology are characteristics of a sophisticated American culture which are being utilized to direct health information, both factual and non-factual, to the public. The result is that Americans spend at least $1 billion per year on unnecessary, falsely promoted, worthless, and sometimes dangerous health products, appliances, and treatments.[1]

Realizing that each of the nation's 19½ million teenagers (27 million by 1970) spends an average of $564 each year, manufacturing and business firms are increasingly aware of the teenage consumer.[2] The informed consumer is best prepared to make intelligent decisions concerning the selection of health products and services and to protect himself and his family against fraudulent health practices. Therefore, this unit is directed toward helping the student to gain the necessary concepts which will enable him to

Evaluate critically claims in labeling and advertising
Avoid fraudulent health appliances and devices
Understand the nature and persistence of medical quackery
Realize the dangers of self-diagnosis and self-medication
Appreciate the role of professional, official, and voluntary agencies in public health protection
Formulate a plan for obtaining future medical care and for meeting health costs

A maximum of two weeks is suggested for completion of this unit. The outline of course content, lists of suggested activities and reference materials, and an explanation of evaluation procedures follow.

---

[1] U. S. Department of Health, Education, and Welfare, Food and Drug Administration, "Consumer Protection Under the Food, Drug, and Cosmetic Act--Outline of Information in FDA Packets," (Consumer Information Branch, Food and Drug Administration, Washington, 20204, D. C.), 1.

[2] "American Business Discovers a Really Swinging Market--The Teenager," Los Angeles Times (April 14, 1963), 1-2.

IT VI

CONSUMER HEALTH PROTECTION

OUTLINE

A. EXPENDITURES FOR HEALTH SERVICES AND PRODUCTS

1. National
2. Personal

B. CONSUMER GUIDELINES

1. Reliable Sources of Health Information
2. Protective Agencies
3. Labeling
4. Misleading advertisements, Statements, and Statistics
   a. "Medical Quackery"
   b. Other Deceptions
5. Folk Medicine and Self-Treatment
   a. Folk Remedies
   b. Patent Medicines
   c. Drugs Prescribed for Others

C. CONSUMER RESPONSIBILITIES IN HEALTH

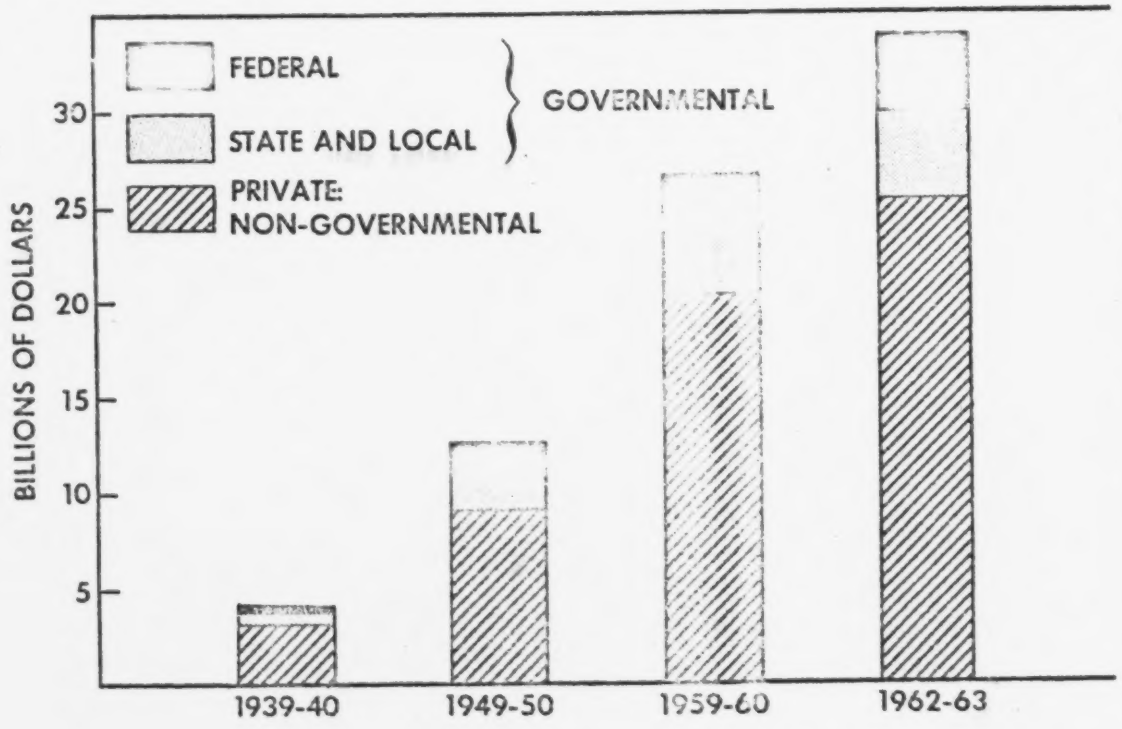
1. Balance of Necessities and Luxuries
2. Long Range Health Plans
   a. Selection of Health Services
   b. Evaluation of Health Insurance
3. Application of Critical Thinking to Consumer Health Practices

326

UNIT VI

CONSUMER HEALTH PROTECTION

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
EXPENDITURES FOR HEALTH SERVICES AND PRODUCTS National	Illustrate by means of graphs the total private and public expenditures annually for health and medical care in the United States. The following chart may be used as a basis for comparing total health and medical expenditures, private and governmental, in recent years. **CHART 2.— PRIVATE AND GOVERNMENTAL EXPENDITURES FOR HEALTH AND MEDICAL CARE: SELECTED FISCAL YEARS, 1939-63**[1]  [1]U. S. Department of Health, Education, and Welfare, Public Health Service, Chart Book of Basic Health Economic Data--Health Economic Series No. 3. (U. S Government Printing Office, Washington 25, D. C.). p. 4.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Medical Care, Health Status and Family Income (U. S. Government Printing Office, Washington 25, D. C.) pp. 21-40. Nagan, Peter S. Medical Almanac. Philadelphia: W. B. Saunders, 1961. p. 332

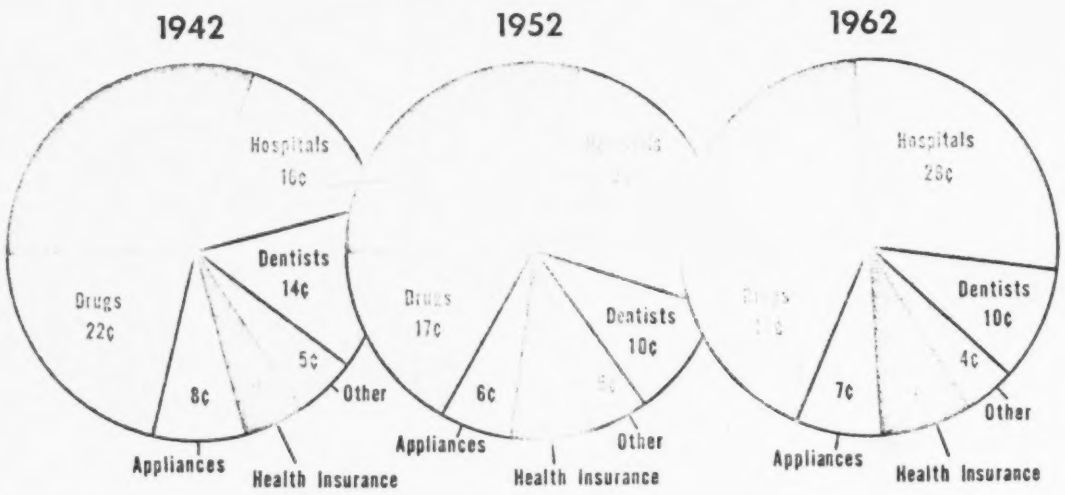
CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
EXPENDITURES FOR HEALTH SERVICES AND PRODUCTS National (cont.)	Point out that health and medical care expenditures in 1939-40 (3.9 billion) accounted for 3.6 per cent of the Gross National Product; by 1959-60, the proportion had risen to 5.4 per cent (26.5 billion). Ask students to estimate the per capita private expenditure for health and medical care for each of the years shown on the preceding chart. Compute the per capita expenditure for the past year. $\frac{\text{Private Medical Expenditure}}{\text{Total Population}} = \text{Per Capita Expenditure}$	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Medical Care, Health Status, and Family Income (U. S. Government Printing Office, Washington 25, D. C.). pp. 41-51.
Personal	Compare the portion of the consumer dollar that is spent for health with that spent for other goods and services. For example, statistics published by the U. S. Department of Commerce reveal that the average American spends about as much for recreational pursuits (06.1 cents) as he does for medical care (06.2 cents).[1] Request students to analyze statistical changes in the distribution of the health care dollar within recent years. What trends are discernible from the following graphs?	

[1] American Medical Association, Division of Environmental Medicine and Medical Services, Department of Community Health and Health Education, "Health Education Service for Schools and Colleges," 4 (May, 1964), 20.

UNIT VI

CONSUMER HEALTH PROTECTION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Personal (cont.)	**DISTRIBUTION OF THE HEALTH CARE DOLLAR** [1]	Text and Library Books



CONSUMER GUIDELINES

Reliable Sources of Health Information

Request the class to list the many ways by which information, factual and nonfactual, concerning health products, appliances, and services reaches the average person. Discuss some of the reasons why wise consumer practices should be applied to the selection of such products and services.

Ask the class, "How can a person distinguish between factual and nonfactual information concerning a health product or

U. S. Department of Health, Education, and Welfare, Food and Drug Administration. "FDA 1963" (Consumer Information Branch, Food and Drug Administration, Washington 25, D. C., 20204). pp. 1-12.

[1] American Medical Association, Division of Environmental Medicine and Medical Services, Department of Community Health and Health Education, "Health Education Service for Schools and Colleges," 4 (May, 1964), 20.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Reliable Sources of Health Information (cont.)	treatment?" Obtain samples of health literature from various sources, including the newspapers, popular magazines, brochures, and public health pamphlets Instruct class members to examine each sample and to rate its accuracy on a 1-to-4 scale, as follows: 1. Completely accurate and reliable 2. Largely factual 3. Misleading 4. Totally unreliable Then ask the class to use the same rating scale to evaluate the reliability of each of the sources of the health literature. Assign student committees to develop a list of criteria for evaluating the reliability of sources of health information and request them to explore and evaluate the available sources for obtaining authoritative information about treatments or health practices proposed in advertisements, books, magazine articles, or pamphlets, or by individuals other than qualified medical doctors.	Text and Library Books Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1961. pp. 68-72.
Protective Agencies	Identify the ways in which various local, state, and national agencies protect the public in the use of drugs and cosmetics. Ask for volunteers to report on the consumer health services of the following agencies: U. S. Food and Drug Administration The Federal Trade Commission The United States Post Office National Bureau of Standards American Medical Association American Dental Association American Cancer Society The Arthritis and Rheumatism Foundation The National Better Business Bureau	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Protective Agencies (cont.)	Consumers Union California State Department of Public Health Los Angeles County Health Department Los Angeles County Medical Society Local Department of Weights and Measures	Text and Library Books
	Assign students to review briefly the history of food and drug legislation in the United States. Ask a volunteer to report on the Federal Food, Drug, and Cosmetic Act.	U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Consumer Protection Under the Food, Drug, and Cosmetic Act, Packet No. 1: Understanding the FDC Act. (Consumer Information Branch, Food and Drug Administration, Washington 25, D. C., 20204).
	Review the regulations required by the Food and Drug Administration for introduction and marketing a new drug. Cite incidents which have made such laws a necessity (Sulfanilamide, Thalidomide). Point out that research expenses represent a large portion of the cost of a new drug.	
	Invite a guest speaker from the Food and Drug Administration. Suggest that he bring some of the "cure-all" machines that have been confiscated by FDA inspectors. Point out that the chief function of the Food and Drug Administration is "to enforce the Federal Food, Drug, and Cosmetic Act and thereby carry out the purpose of Congress to insure that foods are safe, pure, and wholesome, and made under sanitary conditions; drugs and therapeutic devices are safe and effective for their intended uses; cosmetics are safe and prepared from appropriate ingredients; and that all of these products are honestly and informatively labeled and packaged."[1]	U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Consumer Protection Under the Food, Drug, and Cosmetic Act, Packet No. 2: Food Protection Under the FDA Act (Consumer Information Branch, Food and Drug Administration, Washington 25, D. C., 20204).

[1]U. S. Department of Health, Education, and Welfare, Food and Drug Administration. FDA. What It Is and Does. (U. S. Government Printing Office, Washington 25, D. C.). p. 2.

CONSUMER	ACTIVITIES AND INFORMATION	RESOURCES
Protective Agencies (cont.)	Explain how the Food and Drug Administration is responsible for protecting the purity, quality, and labeling of foods, drugs, and cosmetics. Cite some of its activities, which include:[1] 1. Making periodic inspections of food, drug, devices, and cosmetic establishments and examining samples from interstate shipments of these products 2. Assisting industry in voluntary compliance with the law, and in setting up controls to prevent violations 3. Requiring manufacturers to prove the safety and effectiveness of "new" drugs before they are put on sale to the public 4. Testing every batch (except for exemptions) of antibiotic drugs and insulin for safety and effectiveness before they are sold. The manufacturers pay for such tests 5. Enforcing the law against illegal sale of prescription drugs 6. Investigating therapeutic devices for safety and truthfulness of labeling claims	Text and Library Books U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Consumer Protection Under the Food, Drug, and Cosmetic Act, Packet No. 3: Drug Protection Under the FDA Act (Consumer Information Branch, Food and Drug Administration, Washington 25, D. C., 20204).

[1] U. S. Department of Health, Education, and Welfare, Food and Drug Administration. FDA. What It Is and Does. (U. S. Government Printing Office, Washington 25, D. C.). p. 3.

UNIT VI

CONSUMER HEALTH PROTECTION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Protective Agencies (cont.)	7. Setting up standards of identity, quality, and fill of container for food products in line with the congressional mandate to "promote honesty and fair dealing in the interest of consumers"	Text and Library Books
	8. Passing on the safety of food additives and checking to see that safety rules are followed	U. S. Department of Health, Education, and Welfare, Food and Drug Administration. FDA. What It Is and Does (U. S. Government Printing Office, Washington 25, D. C.). pp. 2-10.
	9 Setting safe limits on the amount of pesticide residues that may remain on food crops, and checking the shipments to see that these limits are observed	
	10. Passing on the safety of colors for use in foods, drugs, or cosmetics, and testing and certifying each batch manufactured	
	11. Checking imports of foods, drugs, devices, and cosmetics to make sure they comply with United States laws	
	12. Cooperating with state and local officials in the inspection of foods and drugs contaminated by floods, hurricanes, explosions, and fires, and assisting in the removal of damaged items from the market	
	Ask a student to report some of the controls that are used by reputable drug manufacturers to maintain the high standards which are necessary for insuring the integrity of drug products.	
Labeling	Request the class to suggest examples of several kinds of products, preparations, and appliances which may be considered "health products."	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Labeling (cont.)	Ask students, "In what ways do labels provide protection to the public in the purchase and use of drugs?" Point out that the labels of nonprescription drugs are required by law to bear only truthful statements about their purpose and use. Such information should include: --The official name (official drugs must conform to the standards of the U. S. Pharmacopeia or the National Formulary),or the common usual name of the drug. If a nonofficial drug, the common or usual name of the active ingredient must be stated --Adequate directions for use, including: For what purpose is the medicine to be taken? How much should be taken? How often? For how long? --Warnings against misuse --The name and address of the manufacturer, packer, or distributor --A statement of the quantity of the contents in common units of weight or measure, or numerical count	Text and Library Books U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Read the Label on Foods, Drugs, Devices, Cosmetics, and Household Chemicals. (U. S. Government Printing Office, Washington 25, D. C.). pp. 2-36. U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Federal Food, Drug, and Cosmetic Act, As Amended. (U. S. Government Printing Office, Washington 25, D. C.).
	Collect the empty containers of several drug preparations. Request the students to compare the information appearing on the labels with the labeling requirements of the Food and Drug Administration. Distinguish between generic (official) and brand names of drug preparations. Explain that the ingredients of every drug product, both prescription and nonprescription, sold either under a generic or a brand name must conform to specific legally sanctioned standards for the identity, purity, and strength of that product. Ask students to find out the meaning	Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 221-227.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Labeling (cont.)	of the initials U.S.P. and N F. as used in the descriptions of drug products. Devise a situation to illustrate how this information can be applied in the selection of a drug product. Request the students to collect the labels from several different brands of aspirin and other headache remedies. Ask them to compare the labeled contents of all these materials and then look them up in a medical dictionary or the United States Pharmacopeia. How can the findings of this research be applied by wise consumers?	Text and Library Books
	Ask students, "In what ways do labeling requirements provide protection to the public in the purchase and use of cosmetic products? In what ways are these regulations inadequate?" Point out that the Food and Drug Administration does not require: 1. Prior-to-sale testing of new cosmetic products to demonstrate their safety 2. The labeling of the ingredients of cosmetic products. Persons who may be allergic to specific substances contained in certain preparations are not afforded adequate protection Request students to check the labels of lipsticks, hair preparations and dyes, eye makeup, suntan preparations, and other cosmetics to compare them with the FDA requirements for these substances.	U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Federal Food, Drug, and Cosmetic Act, As Amended. (U. S. Government Printing Office, Washington 25, D. C.).
	Ask students, "In what ways do labels provide protection to the public in the purchase and use of household chemicals?" The labels of such products usually list: 1. The contents 2. Precautions regarding use 3. A special warning, "Keep out of the reach of children."	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Labeling (cont.)	Review briefly FDA requirements concerning the packaging of health products. Point out that the container must not be misleading even though the quantity of contents appears on the label. Point out that the net contents must be stated in common units of weight and measures. Set up an activity in which students are asked to compare the prices of different brands of a health product such as aspirin. Ask the students to analyze some of the reasons for the differences in price. Ask them to suggest several "hidden costs" (advertising, packaging) that are passed on to the consumer in the price of the item.	Text and Library Books U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Federal Food, Drug, and Cosmetic Act, As Amended. (U. S. Government Printing Office, Washington 25, D. C.)
Misleading Advertisements, Statements, and Statistics	Evaluate with class members the role of advertising in public selection and use of health products. What is the purpose of advertising? Discuss some of the psychological techniques that are used to persuade the consumer to purchase and use certain health products. Display "mock" examples which illustrate how advertisements are directed to the so-called "universal desires" of man, such as attractiveness, athletic prowess, popularity, health, happiness, pep, and vitality. Ask students to list some of their reasons for selecting particular brands of toilet articles over others. Analyze examples of misleading and pseudoscientific statements from radio and television commercials, newspaper and magazine advertisements, and from other printed materials (brochures, books, magazines.) Ask students to point out the fallacies in advertising statements using statistics. For example:	Smith, Ralph L. The Health Huckster. New York: Thomas Y. Crowell Company, 1960. pp. 83-107. Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. 254 pp. Packard, Vance. The Hidden Persuaders. New York: David McKay Company, 1957. 242 pp.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Misleading Advertisements, Statements, and Statistics (cont.)	"9 out of 10 doctors use X"(sampling) "It's X, 2 to 1"(sampling) "The average income of the user of X is $20,000 per year" (median should be used) "This product represents 150 years of manufacturing experience"(combined ages of the workers) Assign a student to find out how much money is spent each year for advertising. What percentages of the advertising dollar are spent for television and radio commercials, newspaper and magazine advertisements, published mailing literature, and billboard advertisements? Ask for a report on how the Federal Trade Commission combats false and misleading advertising.	Text and Library Books
"Medical Quackery"	Analyze with students the provisions of the code of the National Association of Broadcasters in regard to the advertising of health products over television and radio. Define the term "medical quackery" as the fraudulent and unauthorized practice of medical skills by persons who pretend professionally or publicly to skill, knowledge, or qualifications which they do not possess. It includes[1] --Practice of the healing arts by persons who are not qualified to do so --Application of worthless methods whether by unqualified practitioners or by those who are qualified by edu-	Nagan, Peter S. Medical Almanac. Philadelphia: W. B. Saunders, 1961. pp. 192-193. Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 68-72.

[1]Gordon R. Wood, "Your Health and the Law, Part VI--Medical Quackery," Health Education Journal 23 (September, 1959), 14.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
"Medical Quackery" (cont.)	cation and training --Distribution of drugs and devices which are worthless for the purposes for which they are offered Trace the origin of quackery in the United States (witchcraft, superstition, scarcity of qualified physicians, reliance on home remedies, and monetary considerations). Request the students to suggest several reasons why fraudulent health practices still flourish. Ask the students, "Why does quackery represent a serious threat to the health and well-being of the public?" Point out that hundreds of millions of dollars are spent each year on worthless treatments and medicines. Discuss some of the ways by which "quacks" reach the public. These include: Lectures "Sure-cure" clinics and health resorts Door-to-door peddlers Mail order solicitations Advertising schemes Healing cults Discuss some of the gimmicks and devices that are used by "quacks." Analyze examples of proven cases of "medical quackery." Point out the various techniques that were used in each case to defraud the public. Following are several examples: Hoxey Cancer Clinic Krebiozen (a substance with claimed carcinogenic action whose exact chemical formula was kept secret) Carter's "Little Liver Pills" Lamps - supersonic and "radionic" (radiation) devices	Text and Library Books "Educational Defense Against Quackery," The Journal of School Health, 34 (March, 1964), 97-105. "The Educational Approach to the Question of Quackery," The Journal of School Health, 34 (March, 1964), 106-111. U. S. Department of Health, Education, and Welfare, Food and Drug Administration. Read the Label on Foods, Drugs, Devices, Cosmetics, and Household Chemicals. (U. S. Government Printing Office, Washington 25, D. C.) pp. 26-31. "Six Myths of the Health Cults," Today's Health 42 (January, 1964), 8-10. Modern Health. p. 449.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
"Medical Quackery" (cont.)	Assign committees to develop a list of ways for recognizing "quacks" and quackery. Emphasize that a "quack" usually: --Promises a "sure" quick cure --Claims his treatment is "secret" --Finds that everyone who sees him is in need of his treatment --Offers testimonials from patients whom he has "cured" --Claims that he is being persecuted by the medical profession --Advertises his services --Offers an unorthodox treatment --Displays diplomas and licenses from unrecognized schools --Uses the titles and symbols of unfamiliar degrees and affiliations to confuse the public In contrast, the legitimate medical practitioner --Holds a degree from a recognized medical school --Is licensed to practice by a state licensing board --Is a member of the local medical society --Has served an internship --Is usually on the staff of one or more hospitals --Offers no "cure-alls" for sale Ask students to bring to class descriptions of questionable treatments and cures from advertisements, magazine articles, pamphlets, brochures, books, and other printed materials. Request the students to describe the procedures that they would use to find out the authenticity of a proposed health treatment or cure.	Text and Library Books Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 71-72. "Don't Get Trapped by a Psychoquack," Today's Health (March, 1964), 29-31.
Other Deceptions	Request the class to list some of the common health devices and beauty aids that are used to deceive the public. Point out that there are no devices or machines recognized for cure of	

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Other Deceptions	a disease by the patient in his home without proper medical supervision. Evaluate the use of electric vibrators as a means for reducing.	Text and Library Books
Folk Medicine and Self-Treatment	Analyze with students some of the reasons for the origin and persistence of folk medicine and "self-doctoring" in the United States, especially in rural areas and along the frontier. Some of these are: 1. The scarcity of physicians. Since there were no medical schools, persons wanting to become doctors had to travel to Europe for their training. 2. Distances. Most people lived miles from towns where physicians' offices usually were located. When sickness and emergencies occurred, people were forced to rely on the nursing skills and "favorite" remedies of family members and friends. 3. Superstition and gullibility. Fear, ignorance, and superstition impeded the application of scientific health knowledge. Assign a committee to present an overview of the health and medical practices that prevailed in the frontier and rural areas of the United States. Ask students to report information concerning the following: 1. What were some of the medicines that were taken along by Lewis and Clark on their expedition to the Northwest, and what were some of the incidents that required the use of such medicines? 2. Who were some of the first physicians who traveled to the West, and what were some of the health	"Do-It-Yourself Doctors of the Old West," Today's Health (October, 1963), 34-37. "Marcus Whitman: Medic, Missionary, Martyr," Today's Health (July, 1964), 13. "Doctors Who Helped Tame the West," Today's Health (December, 1963), 44-47. "The Paleface Medicine Men of the Frontier," Today's Health (March, 1964), 45-47. "A Doctor's Eye View of the Old West," Today's Health August, 1964), 40-43. "Tracing the Trail of Lewis and Clark," Today's Health (September, 1962), 45-47.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Folk Medicine and Self-Treatment (cont.)	problems they encountered? 3. What were some of the treatments adopted by the frontiersmen which were learned from the Indians?	Text and Library Books
Folk Remedies	Ask students to collect and compile information on popular folk remedies and superstitions for preventing and curing illness. Suggest that students interview parents and other adults to gather this type of information. Appoint a committee to organize the data into a bulletin board display. Discuss the extent to which folk remedies are used today.	"Granny Had A Cure for Everything," Today's Health (May, 1963), 30-33.
Patent Medicines	Discuss the rise of nostrums (quack medicines, secret and/or patented, offered to the general public as quick remedies for many or all diseases) as a factor which finally led to the enactment of the Pure Food and Drug Laws. Point out that nearly all nostrums were patented medicines, in that only the brand name or trademark of the product was registered. The ingredients of these medicines were kept secret and often contained harmful substances, including habit-forming drugs. Through popular usage, all nonprescription remedies which are advertised and sold to the public under a brand name came to be known as "patent medicines." Report that nostrums were peddled from door to door, at county fairs, and by traveling medicine shows. In each case, the traveling "quack" huckster made extravagant therapeutic claims for his product and attempted to convince his audience that his product was the "miracle cure-all". "Quack" hucksters moved quickly from town to town, never remaining long enough to bear the responsibility of their fraudulent practices. Ask students to report some of the nostrums that were popular around 1900 and to compare them with modern remedies. Contrast histrionics of the old medicine show peddler with	American Medical Association. Nostrums and Quackery. Chicago: Press of the American Medical Association, 1911. 509 pp.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Patent Medicines (cont.)	those of the modern health huckster who attempts to dupe his listeners into believing that they have the symptoms of disorders that can be treated with the "secret formula" nonprescription product he offers. Explore students' attitudes toward self-diagnosis and self-medication. Discuss some of the reasons why people resort to such practices. Point out that the public spends at least $1 billion per year on falsely promoted, worthless, and sometimes dangerous modern-day nostrums which may be purchased as nonprescription or "over the counter" drugs. Emphasize that practices of self-medication are dangerous because they may: --Relieve the symptoms but not the disease --Delay proper treatment --Interfere with proper diagnosis --Aggravate the condition --Cause allergic reactions Ask students to list the names of at least 5 nonprescription medicines and the therapeutic claims for each. Have students compare the advertising claims for a particular nonprescription medicine with the statements contained on the label of the container. Ask whether they differ. Why? Collect and analyze advertising statements that emphasize the use of "secret formulas". Point out that the labeling requirements and other regulations of the Food and Drug Administration prohibit secret nonprescription drug formulas. Review with students some of the current fraudulent practices which have been cited by the Food and Drug Administration. These include the improper sale of:	Text and Library Books "Therapy of Chaos," Today's Health (January, 1963), 38.

UNIT VI

CONSUMER HEALTH PROTECTION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Patent Medicines (cont.)	--Air purifiers for preventing or treating respiratory infections --Alcoholism treatments --Anemia ("tired blood") preparations --Arthritis remedies --Baldness cures and hair restorers --Cancer treatments --Cold and cough remedies --Laxatives and gimmicks to "break the laxative habit" --Cosmetic quackery --Mail order dental plates and eye glasses --Diabetes treatments --"Health" foods --Health books that promote health treatments and cures --Hormone drugs --Vitamins --Wrinkle removers	Text and Library Books
343 Drugs Prescribed for Others	Ask students, "Why are so many drugs sold on prescription?" Point out that the Food, Drug, and Cosmetic Act places certain drugs in the prescription category as unsafe for use except under medical supervision because they are habit-forming or toxic, or because their method of use requires supervised collateral measures. Mention briefly examples of common types and uses of prescription drugs, such as antibiotics, tranquilizers, cortisone, insulin, amphetamines, and barbiturates. List some of the dangers of taking such medications without the advice of a physician. Ask students to identify the risks in lending medicines among family members, friends, and neighbors. Emphasize that practically any drug is potentially dangerous. Point out that medicine cabinets should be cleaned out regularly to prevent the hazardous accumulations of old medicines. Ask	Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 221-227.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Drugs Prescribed for Others	students to check with the school physician or nurse concerning the choice of items to be included in a family medicine cabinet. Instruct the students to prepare a list of suggested ways for conducting a periodic inventory of the family medicine cabinet.	Text and Library Books
CONSUMER RESPONSIBILITIES IN HEALTH	Present a brief overview of consumer responsibilities in health. Discuss some of the reasons why the informed consumer is more competent than the uninformed consumer to choose health products and services wisely and to protect himself and his family against fraudulent health practices.	
Balance of Necessities and Luxuries	Ask the students to develop a list of items to be included in a personal or family budget and to underscore those expenditures which are related directly to health. Instruct them to estimate what per cent of the total budget should be set aside for each item. Ask them to compare their estimates with an analysis of consumer expenditures for items such as the following:	

DISTRIBUTION OF THE CONSUMER DOLLAR[1]

Item	Cents
Housing	0.27
Food	0.22
Clothing	0.10
Travel	0.12
Recreation	0.06
Health	0.06
Tobacco and Liquor	0.05
All Other Expenditures	0.12
	$1.00

[1]American Medical Association, Division of Environmental Medicine and Medical Services, Department of Community Health and Health Education, "Health Education Service for Schools and Colleges," 1 (April, 1961), 16.

UNIT VI

CONSUMER HEALTH PROTECTION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Long Range Health Plans	Ask students, "Why does an individual and/or family need to formulate some type of long-range health plan for obtaining medical care and advice and for meeting the costs of health examinations, illness, or injury?" Report and analyze the following data that were collected by the U. S. Public Health Service Health Interview Survey of 1962;[1] 1. The average person in the United States spent $129 per year for hospital care, medical and dental services, medicines, and other health related services or products. The amount spent for doctors' services comprised about a third of the total health expenditures. 2. Expenditures per person ranged from $112 for people living in families with less than $2,000 family income to $153 per person for those in families with incomes of $7,000 and over. 3. The amount of health expenses at all income levels increased with advancing age and was greater for females than for males. In families with incomes of less than $2,000 the amount of expense ranged from $29 per person under 15 years of age to $162 per person 65 years and older; with family incomes of $7,000 or more, comparable amounts were $80 per person under 15 years of age and $308 per person 65 years of age and older.	Text and Library Books U. S. Department of Health, Education, and Welfare, Public Health Service. Medical Care, Health Status, and Family Income. (U. S. Government Printing Office, Washington 25, D. C.). pp. 1-92. Health and Safety for You. p. 472.

[1] U. S. Department of Health, Education, and Welfare, Public Health Service. Medical Care, Health Status, and Family Income (U. S. Government Printing Office, Washington 25, D. C.). p. 51.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Selection of Health Services	Ask students, "How can the selection of professional health services affect a person's health?" Discuss the application of wise consumer practices to the selection of professional health services? Request student committees to prepare lists of desirable qualifications of a physician and/or dentist and then to outline a list of procedures for selecting reputable health advisers. Assign a student to find out the procedures for selecting a physician in medical plans which limit choice of a physician to a staff of doctors which belong to a particular medical group. Ask students to outline the procedures that they would follow in selecting a physician if they were in need of medical care while on a trip. Discuss sources for obtaining assistance in the selection of a physician while in a foreign country (American Consulate, American Red Cross, the American Express). Discuss the role of the following health advisers in preventing, diagnosing, and treating illness: The general practitioner The physician who is a specialist in a particular field of medicine Assign students to develop a word list which includes the various medical specialties Appoint a committee to develop a chart describing desirable characteristics of a hospital. Ask them to find out what standards must be met by a hospital for accreditations. Discuss the differences between a hospital and a clinic.	Text and Library Books Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 228-234. Modern Health. pp. 448-462. Health and Safety for You. pp. 469-472. Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 235-243.

UNIT VI

CONSUMER HEALTH PROTECTION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Evaluation of Health Insurance	Report that approximately three-fourths of the people of the United States have some form of voluntary prepayment plan for meeting the costs of medical care.[1] Discuss different types of voluntary health insurance and group medical plans that are available to the public and the advantages and disadvantages of each. Develop a list of factors that one should consider when purchasing health insurance. For example: 1. Eligibility and waiting period (group only?) 2. Enrollment restrictions (extension of coverage to family members?) 3. Choice of physician and hospital 4. Room and board while in the hospital (how much per day, and for how long?) 5. Surgical benefits 6. Other benefits, if needed, including use of the operating room, ambulance service, X-rays, physical therapy, drugs, doctors'calls, and special nurses Appoint a committee to obtain the brochures of several health insurance plans and to prepare a chart comparing the scope of coverage and monthly premiums for each. Ask the committee to report the findings to the class. Discuss briefly other forms of insurance coverage. [1]U. S. Department of Health, Education, and Welfare, Public Health Service. Medical Care, Health Status, and Family Income (U. S. Government Printing Office, Washington 25, D. C.). p. 5.	Text and Library Books "Tips on Buying Better Health Insurance Coverage," Today's Health (November, 1963), 44-45. Health and Safety for You. p. 472.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Application of Critical Thinking to Consumer Health Practices	Instruct class committees to develop a list of criteria for the selection of ethical health products. For example: --Recommendation by personal physician or dentist --Compliance with standards set forth by professional, voluntary, and official health agencies and groups --Reputation of the manufacturer --Known effects on human beings of the labeled ingredients --Costs Assign class members to select an article from a newspaper or magazine announcing a new drug or treatment and to judge whether the story is describing a significant medical finding or is an over-optimistic claim. Develop a list of criteria to help distinguish between a real medical advance and an untried or theoretical one. Following is a list of suggestions: 1. What is the source of the news item? 2. Who made the discovery and where? 3. Who sponsored the research? 4. How extensive was the testing and at what stage is the research being reported? 5. What are the results of the testing, and of what medical value are they? Ask students to explain the statement, "The label is your window to the contents of the package." Point out that the label is put on the package for the benefit and protection of the consumer. The label should be read carefully and studied. Instruct students to write a brief report suggesting ways by which the various health agencies can help to protect the consumer. Discuss some of the following questions with students:	Text and Library Books Editors of Consumer Reports. The Medicine Show. New York: Consumers Union, 1963. pp. 221-227.

UNIT VI

CONSUMER HEALTH PROTECTION

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Application of Critical Thinking to Consumer Health Practices (cont.)	1. Should medical associations take a stand on questionable medicines and advertising claims? 2. Should the Federal Trade Commission be given increased jurisdiction over advertising claims? 3. Should Congress pass more laws to strengthen the pure food, drug, and cosmetic laws? 4. How can the public be alerted to false advertising claims and pseudoscientific statements that reach them through radio, television, and newspapers and other printed materials?	Text and Library Books Editors of Consumer Reports. The Medicine Show New York: Consumers Union, 1963. pp. 221-227.

III. EVALUATION

Student progress in achieving the purposes of this unit may be appraised in a variety of ways, including:

A. Tests and Inventories

1. Points of View on Consumer Health. Lists of statements which reflect various concepts and points of view concerning consumer health practices are presented to students with the request that they identify those statements which most nearly represent the practices and views of a well-informed consumer.
2. Identification of Fraudulent and Misleading Statements. Lists of statements, both factual and non-factual, are presented to students. They are requested to distinguish those statements which most likely would be made by a medical "quack" from those which probably would represent the statements of a reputable health adviser.
3. Matching Items. Students are asked to match the names of the various specialized fields of medicine that are listed in one column with corresponding medical functions listed in second column.
4. Application of Principles. Descriptive situations involving consumer health practices are presented to students, and they are requested to tell how they would react to each situation.
5. Interpretation of the Facts. Students are asked to interpret and to evaluate the information appearing on the labels of drugs, foods, and cosmetics.
6. Analysis of Attitudes Toward Self-Medication. Students are asked to state whether they agree or disagree with various situations involving practices of self-medication and self-diagnosis.
7. Identification of Reliable Sources of Information. Students are requested to identify reliable sources for obtaining information on various situations involving possibly fraudulent consumer health practices.

B. Performance of Classwork

1. Performance Checks. Students are presented with problem situations involving the selection of health products to determine their ability to make decisions based on wise consumership.
2. Oral and Written Reports.
3. Contribution to Committee and Class Discussions. Students are given an opportunity to rate the contributions of fellow committee members with whom they are working on a project.

C. Student Self-Appraisal

UNIT VII

ESSENTIALS OF FIRST AID

I. SCOPE OF THE UNIT

The unit, Essentials of First Aid, consists of the American Red Cross Standard First Aid Course. Every student completing this course should be given the opportunity to obtain the American Red Cross Standard First Aid Card. This involves an evaluation period in addition to the classroom instruction, thus allowing three weeks for completion of the unit. The procedures for this evaluation, together with the Standard Course Lesson Plan[1], have been reproduced as follows with the permission of the American National Red Cross for use in the senior high school health education program of the Los Angeles City Schools:

The primary purpose of first aid training is the prevention of accidents. In dollar costs, accidents drain the economy of the nation to this extent in any given year:

Total costs of accidents	$ 8,700,000,000
Medical fees and hospital expenses	600,000,000
Administrative and claim settlements costs of insurance	1,300,000,000
Property damage in motor vehicle accidents	1,500,000,000
Property destroyed by fire	815,000,000
Property destroyed or production lost due to occupational accidents	1,500,000,000

First aid education can and does help reduce these figures, first, by creating an awareness of the problem; second, through skills and knowledge necessary to prevent accidents and give proper care to accident victims; and third, by developing a sense of responsibility for the safety of others.

The standard course meets the need of most people because they do not encounter injuries to the extent that policemen, firemen, and first aid station attendants do. Therefore, the instructor should stress prevention, early medical care, common injuries, and lifesaving skills. The primary objectives are to

Encourage good safety attitudes and practices

Prepare students to give first aid, particularly to themselves and members of their family.

---

[1]The American National Red Cross, Standard and Advanced Courses, First Aid Instructor's Manual. (Washington, D. C.: The American National Red Cross, 1961), pp. 1-55.

UNIT VII

ESSENTIALS OF FIRST AID

OUTLINE

A. ORIENTATION

1. The Why and How of First Aid
2. General Directions for First Aid

B. WOUNDS

1. Types
2. Infection
3. First Aid for Wounds
4. Bandages and Dressings

C. SHOCK

D. ARTIFICIAL RESPIRATION

1. Definition and Purpose
2. Conditions in Which Artificial Respiration May be Helpful
   a. Electrocution
   b. Poisoning by Gas
   c. Drowning
3. Methods of Artificial Respiration

E. ORAL POISONS

F. HEAD INJURIES

G. INJURIES TO BONES, JOINTS, AND MUSCLES

1. Fractures
2. Sprains
3. Dislocations
4. Strains
5. Immobilization of Injured Parts

H. INJURIES DUE TO HEAT, COLD, AND CHEMICALS

1. Thermal Burns
2. Sunburn
3. Chemical Burns
4. Excessive Heat
5. Heat Exhaustion
6. Heat Stroke and Heat Cramps
7. Frostbite
8. Prolonged Exposure to Cold

I. COMMON EMERGENCIES

J. TRANSPORTATION OF THE DISABLED INDIVIDUAL

1. Methods of Transfer
2. Lifting
3. Carrying

K. CIVIL DEFENSE--EMERGENCIES AND DISASTERS

352

UNIT VII

ESSENTIALS OF FIRST AID

II. SUGGESTED ACTIVITIES AND REFERENCE MATERIALS

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
ORIENTATION	Present a brief overview of the course. Explain evaluation and certification procedures.	Text and Library Books
The Why and How of First Aid	Define first aid. Discuss the values of first aid.	First Aid Instructional Charts.
	Review school policies and procedures regarding accidents and sudden illness. Instruct students in the reporting of accidents at school, at home, and in the community.	American Red Cross First Aid Textbook. pp. 1-4.
General Directions for First Aid	Discuss generally what to do at the accident scene. Ask the students to list some important first aid guides to follow at the accident scene. Identify immediate first aid needs: --Severe bleeding --Stoppage of breathing (asphyxia) --Poisoning	American Red Cross First Aid Textbook. pp. 5-10.
	Review general care of accident victims: --Position --Warmth --Examination --Obtaining help	
	Discuss additional considerations surrounding the accident scene and the injured person.	
WOUNDS	State that the objectives of wound care are to	American Red Cross First Aid Textbook. pp. 11-13.
Types	--Protect the wound from contamination --Control bleeding	
	Define wounds and describe the 4 common types. Ask the class	

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Types (cont.)	to explain how wounds may be prevented.	Text and Library Books
Infection	Impress students with the dangers of infection. Inform them why infection occurs and how it may be prevented. Discuss how to recognize infected wounds.	American Red Cross First Aid Textbook. pp. 13-16.
First Aid for Wounds	Discuss and demonstrate emergency measures for wounds. --Care when bleeding is not severe --Care when bleeding is severe Direct pressure and elevation of the part Pressure to the supplying vessel The tourniquet (Only when it is a choice of limb or death) --Internal bleeding --Nosebleed --Care for "special" wounds Infected wounds Gunshot wounds Wounds with danger of tetanus Animal bites	First Aid Instructional Charts American Red Cross First Aid Textbook. pp. 14-24; 113-118.
Bandages and Dressings	Show the different types of bandages and dressings. Explain the term "dressing" and display various commercial and improvised dressings. Explain the term "bandage" and display various commercial and improvised bandages. Use the illustrations on page 104 of the first aid textbook to discuss the body planes and to show how different bandages are fitted to the different body planes. Demonstrate the following bandaging skills, and then allow the class to practice each skill:	First aid dressings and bandages American Red Cross First Aid Textbook. pp. 103-118.

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Bandages and Dressings (cont.)	--The anchoring and "tying off" of a bandage --The circular turn --The spiral turn (closed and open) --The figure-of-eight turn --The recurrent turn Devise accident problems involving wounds, bleeding control, and bandaging. For example, a boy while riding a bicycle, loses his balance and falls to the pavement. His forearm is cut by broken glass and is bleeding severely. Instruct the students to control the bleeding and to bandage the injured part. Ask the class to suggest additional first aid problems involving control of bleeding and use of bandages; have the class apply proper first aid.	Text and Library Books
SHOCK	State that the over-all objective of shock care is to prevent or to reduce shock by keeping the victim lying down and comfortable. Stress the importance of shock care for all accident victims. Ask a student to define shock. Request the class to name some causes of shock. Discuss the dangers of shock. Review the signs and symptoms of shock. List the first aid care for shock. Discuss the following in relation to first aid for shock: --Position --Heat --Fluids --Other Measures	American Red Cross First Aid Textbook. pp. 25-30.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
ARTIFICIAL RESPIRATION	State that the over-all objectives of artificial respiration are to:	Text and Library Books
Definition and Purpose	--Maintain an alternating decrease and increase in the expansion of the chest --Maintain an open airway through the mouth and nose	American Red Cross First Aid Textbook. pp. 32-45.
	Use charts and models to show briefly how the respiratory system works and what happens when breathing fails.	A Supplement on Artificial Respiration to Accompany Red Cross Textbooks. pp. 1-14.
Conditions in Which Artificial Respiration May Be Helpful	List conditions in which artificial respiration may be helpful. For example: --When air is excluded from the lungs, e.g., drowning, choking, hanging. --When oxygen is displaced from the blood stream, e.g., carbon monoxide poisoning --When there is low concentration of oxygen, e.g., empty silos, wells, cisterns, and noxious gas fumes --When the respiratory system is depressed or paralyzed, e.g., electric shock, alcoholic intoxication, certain drugs	American Red Cross First Aid Textbook. pp. 1-14.
Electrocution	Explain the effect of electric shock. Ask the class to discuss: --How accidents involving the use of electricity occur --How such accidents can be prevented --What rescue methods and precautions should be stressed --What first aid care should be administered	
Poisoning by Gas	Explain the effect of gas poisoning. Discuss with the class: --How accidents involving various poisonous gases occur --How such accidents can be prevented	

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Poisoning by Gas (cont.)	--What rescue methods and precautions should be stressed --What first aid care should be administered	Text and Library Books
Drowning	Review with students the basic rules of water safety. Encourage nonswimmers to join a water safety program. Discuss simple water rescue methods. Assure the class that they can help even if they can't swim.	
Methods of Artificial Respiration	Point out that in the absence of equipment or of help from a second person, regardless of the cause of cessation of breathing, authorities agree that the mouth-to-mouth or mouth-to-nose method of artificial respiration is the most practical method for emergency ventilation of any individual of any age who has stopped breathing. This method has the advantage of providing pressure to inflate the victim's lung immediately. It also provides more accurate information on the volume, pressure, and timing of efforts needed to inflate the victim's lungs than is afforded by other methods. Impress upon students the need to start artificial respiration immediately when breathing stops. Point out that, normally, recovery should be rapid, except in electric shock, drug poisoning, or carbon monoxide poisoning cases. When such cases are encountered, artificial respiration must often be carried on for long periods. Artificial respiration should be continued until the victim begins to breathe for himself; until a physician pronounces the victim dead; or until the person appears to be dead beyond any doubt. Describe the mouth-to-mouth or mouth-to-nose method of artificial respiration. Illustrate methods for tilting the head to relieve obstruction of the airway and to dislodge foreign objects from the mouth. Discuss the mouth-to-mouth technique for use on infants and small children.	A Supplement on Artificial Respiration to Accompany Red Cross Textbooks. pp. 1-14.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Methods of Artificial Respiration (cont.)	Demonstrate the back pressure-arm lift method of artificial respiration. Point out that the dangers of too much compression and too much expansion may result in the following: --Possible damage to chest cage --Possible dislocation of shoulders Arrange the class into pairs, of near equal weights, and instruct them to practice this method. Correct errors. Ask the class to suggest how artificial respiration might be done if the victim were: --In a reclining position, face up --In a sitting position --In a position where only the chest and head are visible Devise accident problems involving stoppage of breathing. Sample problem: Two men are found in a garage. The motor of the car is running. All doors and windows are tightly closed. Instruct the class to effect the rescue and to perform artificial respiration. Ask the class to suggest additional first aid problems which deal with injuries producing shock and stoppage of breathing.	Text and Library Books
ORAL POISONS	Assign each student to answer the following question in writing: "What would you do if someone accidentally drank some kerosene?" State that the over-all objective for poison cases is to dilute the poison as fast as possible; then, except as advised,	American Red Cross First Aid Textbook. pp. 47-54. Display of common household poisons.

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
ORAL POISONS (cont.)	to induce vomiting. ("Flush-Drain-Refill-Repeat"). Discuss the following in relation to oral poisoning: --Need for quick action --Causes of poisoning --Signs and symptoms --Prevention (Care and disposal of common household poisons) Review emergency first aid procedures for accidental poisoning: --General care --Care when substance is an acid --Care when substance is an alkali	Text and Library Books
HEAD INJURIES	List the types of accident situations where head injuries are most likely to occur. Stress the seriousness of this type of injury and the need for proper first aid care. Review the signs and symptoms of head injury. Identify first aid care for head injuries.	American Red Cross First Aid Textbook. pp. 63-65.
INJURIES TO BONES, JOINTS, AND MUSCLES Fractures	Emphasize ways to prevent injuries to the bones, joints, and muscles. State the objectives for care of fractures. Ask the class to define the following: --Simple or closed fracture --Compound or open fracture --Comminuted fracture Discuss the following in relation to fractures:	American Red Cross First Aid Textbook. pp. 55-63.

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Fractures (cont.)	--Causes and preventive measures --Signs and symptoms --First aid measures	Text and Library Books American Red Cross First Aid Textbook. pp. 65-66.
Sprains	Ask a student to describe a sprain. Discuss the following in relation to sprains: --Causes and preventive measures --Signs and symptoms --First aid measures	American Red Cross First Aid Textbook. pp. 66-67.
Dislocations	Request a student to describe a dislocation. Discuss the following in relation to dislocations: --Causes and preventive measures --Signs and symptoms --First aid measures	
Strains	Point out that strains are injuries to muscles, ligaments, and tendons resulting from severe exertion. Discuss the following in relation to strains: --Causes and preventive measures --Signs and symptoms --First aid measures	American Red Cross First Aid Textbook. pp. 68-69.
Immobilization of Injured Parts	Present the principles of immobilization of skeletal and muscular injuries. Display and explain the use of --Board splints --Blanket splints --Magazine and newspaper splints Demonstrate the use of a board splint on the leg. Demonstrate the use of the uninjured leg as a splint.	Standard and improvised materials for splinting

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Immobilization of Injured Parts (cont.)	Divide the class into groups and have them practice the application of: --A board splint (leg) --A blanket or pillow splint (forearm) --Any available materials suitable for splinting Ask two students to immobilize a fracture of the collar bone. Devise accident problems involving fractures, dislocations, strains, and/or sprains. Sample problem: An elderly man is found lying on the ground in his yard. His left leg is twisted under his right leg at an odd angle. Blood is seeping through the left trouser leg. A ladder with a broken rung is found nearby. Request class members to administer proper first aid care to the injured victim. Ask the class to suggest additional problems dealing with injuries to bones, muscles, and joints.	Text and Library Books
INJURIES DUE TO HEAT, COLD, AND CHEMICALS	Administer a brief pretest consisting of the following questions: 1. "What would you do if you saw a child running toward you with his clothing aflame?" 2. "What would you do if you saw a person collapse while working in an unventilated area on a hot, humid day?" 3. "What first aid care would you give for frostbite?" List the three general kinds of burns. State that the overall objectives for treating burn injuries are to relieve pain, to prevent contamination, and to treat for shock.	American Red Cross First Aid Textbook. pp. 70-71.

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Thermal Burns	Stress the importance of fire prevention. Discuss the effects of fires upon the individual and the community. For example: --The accidental death rate resulting from burns --The physical and psychological effects resulting from permanent disability and scarring --Economic losses Develop a list of safety practices for the prevention of fires. Identify some of the hazards that are associated with fires. For example: --Effects of heat on the body --Presence of carbon monoxide --Absence of oxygen --Effects of smoke in preventing escape --Hazards of jumping from buildings when trapped by fire Review first aid care for thermal burns. Discuss the following: --Application of dressings and other types of covering --Position of the patient --Use of fluids --Need of immediate medical aid when the eyes are involved	Text and Library Books American Red Cross First Aid Textbook. pp. 71-77.
Sunburn	Stress the severity of this common occurrence. Ask the class to suggest ways for preventing sunburn. Review the following factors in relation to sunburn: --Cause --Effect --Recognition --First aid care	American Red Cross First Aid Textbook. pp. 77-78.

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
Chemical Burns	Emphasize the importance of immediate action to counteract the effects of irritating chemicals on the skin and in the eyes. Review first aid measures for chemical burns of the skin.	Text and Library Books
	Identify the first aid measures for chemical burns of the eye. Emphasize that the victim should seek immediate medical attention.	American Red Cross First Aid Textbook. pp. 78-79.
Excessive Heat	List the types of injuries that are caused by excessive heat. These include heat exhaustion, heat stroke, and heat cramps. Ask the class to develop a list of preventive and protective measures against excessive heat.	American Red Cross First Aid Textbook. pp. 79-82.
Heat Exhaustion	Ask the class to describe some of the signs and symptoms of heat exhaustion. Discuss the first aid care for this condition.	
Heat Stroke and Heat Cramps	Request the class to identify some of the signs and symptoms of heat stroke. Review the first aid care for this condition. Identify the first aid procedures for heat cramps.	
Frostbite	Have the class tell how frostbite is produced and how it may be prevented. List some of the signs and symptoms of frostbite. Discuss the first aid care for this condition.	American Red Cross First Aid Textbook. pp. 82-84.
Prolonged Exposure to Cold	Identify some of the symptoms resulting from prolonged exposure to excessive cold. Review the first aid care for this condition.	American Red Cross First Aid Textbook. p. 84.
	Devise several accident problems involving injuries due to heat, cold, and chemicals. Assign the problem to student committees for solution.	

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
COMMON EMERGENCIES	Identify the causes, signs, and emergency first aid procedures for the following selected common emergencies: --Heart attack --Foreign body in the air or food passages --Apoplexy (stroke) --Simple fainting --Epileptic convulsions --Hysteria, panic, and anxiety --Unconsciousness Causes known Causes unknown --Foreign body in the eye --Animal bites and stings --Plant poisons Devise several problem situations involving common emergencies. Assign class members to explain the first aid care for each of the conditions described.	Text and Library Books American Red Cross First Aid Textbook. pp. 85-96.
TRANSPORTATION OF THE DISABLED INDIVIDUAL	State that the over-all objectives of methods for transporting the disabled individual is to --Avoid subjecting the patient to unnecessary disturbance during planning, preparation, and transfer --Prevent injured body parts from twisting, bending, and shaking List several methods of transfer. These include short distance transfers (the walking assist, manual carries, transfer by supporting devices such as stretchers and cots) and transfer by vehicles. Identify some of the factors which should be included in the planning for transportation of an injured person. Discuss	American Red Cross First Aid Textbook. pp. 97-102.

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
TRANSPORTATION OF THE DISABLED INDIVIDUAL(cont)	the need for preparation of the patient who is to be transferred.	Text and Library Books
Methods of Transfer	Discuss and demonstrate recommended methods for "pulling the victim to safety."	American Red Cross First Aid Textbook. pp. 99. 126-133.
Lifting	Demonstrate how to place a blanket under an injured person and how to use the blanket to transfer the victim to a stretcher. Select six students, five bearers and a victim, to demonstrate the blanket lift. (Note: The student representing the victim should not be a heavy person.) Divide the class into groups of six for supervised practice.	Blanket Stretcher Chair
Carrying	Supervise the demonstration of the following "carries" to illustrate how an injured person may be carried a short distance when a stretcher is not available: --Three man lift and hammock carry --Six and eight man carries --Chair carry --Two man arm carry	
CIVIL DEFENSE--EMERGENCIES AND DISASTERS	Discuss and evaluate the effectiveness of school, community, and home survival programs. Interpret the meaning of the various warning signals, such as the "yellow" and "red" alerts. Identify and discuss suggested procedures for meeting sudden emergencies, such as fires, earthquakes, and accidents. Ask class members to develop lists of self-protective techniques for survival in the following situations:	Civilian Defense Materials

UNIT VII

ESSENTIALS OF FIRST AID

CONTENT	ACTIVITIES AND INFORMATION	RESOURCES
CIVIL DEFENSE--EMERGENCIES AND DISASTERS (cont.)	--If lost in the desert, in the mountains, or at sea --If caught in a flood --If caught in a rip tide or other dangerous situation while swimming	Text and Library Books
	Invite the school nurse to discuss the items which should be included in a first aid kit.	School First Aid Kit.

366

UNIT VII

ESSENTIALS OF FIRST AID

III. EVALUATION

Following are the required evaluation procedures pursuant to certification by the American Red Cross of having completed the standard first aid course:

A. Purposes of Testing

To test the validity of /the/ teaching
To stimulate student interest and response
To evaluate the students' performance

B. Methods of Testing

1. Performance of essential skills

a. Bleeding Control
b. Artificial Respiration
c. Fracture Immobilization
d. Transportation of Accident Victim to Safety

2. Written Tests

a. Subjective Tests. Example: Define first aid.
b. Objective Tests. Three types and examples:
--True or False Tests. "In heat stroke the pulse is rapid." (T) F
--Completion Answers. "The recommended rate for giving artificial respiration is 12 times per minute."
--Multiple-Choice Questions. "First aid care for lye poisoning is:
1. Cause the victim to vomit
2. Give the victim 5 or 6 glasses of water
3. Give the victim lemon juice or vinegar mixed with milk or water"

C. Suggested Methods of Grading for Certification

Grading should be confined to "Pass" or "Fail" rather than a graduated series of markings. The instructor should consider skill proficiency the major factor and subject matter the minor factor in the final decision. In mathematical terms this would be about a 60-40 ratio. The Red Cross teacher-instructor certifies on Form 325 ("Evaluation Record Standard First Aid Course") that the students whose names are listed have met the requirements of the standard course and, therefore, should be awarded the American Red Cross Standard First Aid Card.

367

BIBLIOGRAPHY OF HEALTH EDUCATION MATERIALS

IN SENIOR HIGH SCHOOL LIBRARIES

Below is a list of health education materials in senior high school libraries. The publisher and the call number of each book are indicated to the right of the title.

ORIENTATION TO HEALTH NEEDS

Antonacci, Robert	PHYSICAL FITNESS FOR YOUNG CHAMPIONS	McGraw, 1962	
Behrman, Howard Taft	YOUR SKIN AND ITS CARE	Emerson, 1948	613
Carson, Byrta	HOW YOU LOOK AND DRESS: A FIRST COURSE IN CLOTHING	McGraw-Hill, 1959	646
Conover, Jessie Wilcox	FINISHING TOUCHES	Harper, 1961	646.7
Cooke, David C.	BETTER PHYSICAL FITNESS FOR BOYS	Dodd, 1961	613
Davenport, Gwen	TALL GIRL'S HANDBOOK	Doubleday, 1959	170
Glemser, Bernard	ALL ABOUT THE HUMAN BODY	Random, 1958	612
Keiffer, Elisabeth	McCALLS GUIDE TO TEEN-AGE BEAUTY AND GLAMOUR	Prentice-Hall, 1959	646.7
Lane, Janet	YOUR CARRIAGE, MADAM, 2 ed.	Wiley, 1947	613
Lawrence, Herbert	CARE OF YOUR SKIN	Little, 1955	613
Loeb, Robert H.	HE-MANNERS	Association Press, 1954	395
Metheny, Eleanor	BODY DYNAMICS	McGraw, 1952	613
Miller, Jerome J.	YOUR TEETH AND HOW TO KEEP THEM	Lantern Press, 1951	617
Miller, Mary S.	HERE'S TO YOU, MISS TEEN	Holt, Rinehart, and Winston, 1960	646.7
Oerke, Bess	DRESS	Bennett, 1960	646
Pashko, Stanley	BOY'S BOOK OF BODY BUILDING	Greenberg, 1949	796

ORIENTATION TO HEALTH NEEDS (cont.)

Perry, John	OUR WONDERFUL EYES	McGraw, 1955	617
Pollard, L. Belle	EXPERIENCES WITH CLOTHING	Ginn, 1961	646
Ravielli, Anthony	WONDERS OF THE HUMAN BODY	Viking, 1954	611
Riedman, Sarah R.	YOUR BLOOD AND YOU, rev. ed.	Abelard, 1963	
Rossi, William A.	YOUR FEET AND THEIR CARE	Emerson, 1955	
Schneider, Herman	HOW YOUR BODY WORKS	Scott, 1949	612
Schneider, Leo	LIFELINE: THE STORY OF YOUR CIRCULATORY SYSTEM	Harcourt, 1958	612
Schneider, Leo	YOU AND YOUR SENSES	Harcourt, 1956	612
Scholz, Roy O.	SIGHT: A HANDBOOK FOR LAYMEN	Doubleday, 1960	617
Scott, Ruth B.	YOUR POSTURE IS SHOWING	American Medical Association, 1956	
Seeman, Bernard	RIVER OF LIFE	Norton, 1961	612
Snively, William D., Jr.	SEA WITHIN: STORY OF OUR BODY FLUID	Lippincott, 1960	612
Sutton, Richard L., Jr.	SKIN	Doubleday	613
Ullman, Frances	GIRL ALIVE (Rainbow classic), rev. ed.	World Publishing, 1957	170
Vail, Derrick	TRUTH ABOUT YOUR EYES, 2 ed.	Farrar Strauss, 1959	617
Van Bergeijk, William and others	WAVES AND THE EAR (ANCHOR)	Doubleday, 1960	612
Weart. Edith L.	STORY OF YOUR BRAIN AND NERVES	Coward, 1961	
Zim, Herbert S.	OUR SENSES AND HOW THEY WORK	Morrow, 1956	612
Zim, Herbert S.	WHAT'S INSIDE OF ME?	Morrow, 1952	612

370

GUIDELINES FOR IMPROVED NUTRITION

Arnold, Pauline and Percival White	FOOD: AMERICA'S BIGGEST BUSINESS	Holiday, 1959	641
Bogert, L. Jean	NUTRITION AND PHYSICAL FITNESS, 7 ed.	Saunders, 1960	613.2
Callahan, Dorothy	GREAT NUTRITION PUZZLE	Scribner, 1956	613.2
Cooper, Lenna and others	NUTRITION IN HEALTH AND DISEASE, 14th ed.	Lippincott, 1963	613.2
Leverton, Ruth	FOOD BECOMES YOU, rev. ed.	Iowa State College, 1960	613.2
McHenry, Earl W.	FOODS WITHOUT FADS	Lippincott, 1960	641
Orr, John B.	WONDERFUL WORLD OF FOOD	Doubleday, 1958	641
Peyton, Alice B.	PRACTICAL NUTRITION, 2 ed.	Lippincott, 1962	641
Sherman, Henry C. and Caroline Lanford	ESSENTIALS OF NUTRITION, 4 ed.	Macmillan, 1957	613.2
Snively, William D., Jr.	SEA WITHIN: STORY OF OUR BODY FLUID	Lippincott, 1960	612
Styler, Herman	PLAGUE FIGHTERS	Chilton, 1960	614
Tannenbaum, Beulah	UNDERSTANDING FOOD	McGraw, 1962	
U. S. Department of Agriculture	FOOD: THE YEARBOOK OF AGRICULTURE, 1959	Government Printing Office 1959	630
White, Ruth B.	YOU AND YOUR FOOD	Prentice-Hall, 1959	641
Zim, Herbert S.	YOUR FOOD AND YOU	Morrow, 1957	613.2

TRANSITIONS TO MATURITY

Aldrich, Charles	BABIES ARE HUMAN BEINGS, 2 ed.	Macmillan, 1954	649
Alexander, Arthur	THE HIDDEN YOU: PSYCHOLOGY IN YOUR LIFE	Prentice-Hall, 1962	150
*Armstrong, David W.	QUESTIONS BOYS ASK	Dutton, 1955	170
Baber, Ray E.	MARRIAGE AND THE FAMILY, 2 ed.	McGraw, 1953	173
Bailard, Virginia	WAYS TO IMPROVE YOUR PERSONALITY	McGraw, 1951	170
Beery, Mary	YOUNG TEENS TALK IT OVER	McGraw, 1957	170
Billett, Roy O.	GROWING UP, 2 ed.	Heath, 1958	170
Bockner, Ruth	GROWING YOUR OWN WAY	Abelard, 1959	150
*Bossard, James H.	GIRL THAT YOU MARRY	Macrae, 1960	173
*Bowman, Henry	MARRIAGE FOR MODERNS, 4 ed.	Whittlesey, 1960	173
Burnham, Helen A.	BOYS WILL BE MEN, 3 ed.	Lippincott, 1957	170
Candland, Douglas K.	EXPLORING BEHAVIOR	Basic Books, 1961	150
*Corner, George W.	ATTAINING MANHOOD, 2 ed.	Harper, 1952	613.9
Cosgrove, Margaret L.	WONDERS INSIDE YOU	Dodd, 1955	612
Crawford, John E.	BETTER WAYS OF GROWING UP	Muhlenberg, 1948	150
Crow, Lester D.	ADOLESCENT DEVELOPMENT AND ADJUSTMENT	McGraw, 1956	136.7
Daly, Maureen	WHAT'S YOUR P. Q.?	Dodd, 1952	137
*Dickerson, Roy E.	GROWING INTO MANHOOD	Association Press, 1954	613.9
*Duvall, Evelyn M.	ART OF DATING	Association Press, 1958	177
*Duvall, Evelyn M.	BEING MARRIED	Association Press, 1960	173

*Indicates restricted circulation

TRANSITIONS TO MATURITY (cont.)

*Duvall, Evelyn M.	FACTS OF LIFE AND LOVE FOR TEENAGERS	Association Press, 1956	176
Duvall, Evelyn M.	FAMILY LIVING	Macmillan, 1961	173
Engle, T. L.	PSYCHOLOGY	World Book, 1957	150
Fedder, Ruth	YOU--THE PERSON YOU WANT TO BE	McGraw, 1957	150
Felsen, Henry	LETTERS TO A TEEN-AGE SON	Dodd, 1962	170
Flesch, Rudolf	ART OF CLEAR THINKING	Harper, 1951	160
Gesell, Arnold	CHILD FROM FIVE TO TEN	Harper, 1946	136.7
Glendining, Marion	TEEN TALK	Knopf, 1951	170
Grabbe, Paul	WE CALL IT HUMAN NATURE	Harper, 1939	150
Groves, Ernest	FAMILY AND ITS RELATIONSHIP	Lippincott, 1953	173
Gruenberg, Sidonie M., editor	ENCYCLOPEDIA OF CHILD CARE AND GUIDANCE	Doubleday, 1954	136.7
Hanna, Lavone A.	FACING LIFE'S PROBLEMS	Rand, 1956	174
Hutchins, Carleen	LIFE'S KEY: DNA	Coward, 1961	575
Keliher, Alice V.	LIFE AND GROWTH	Appleton-Century, 1941	301
Kunkel, Fritz	WHAT IT MEANS TO GROW UP	Scribner, 1936	136.7
*Landis, Judson T.	BUILDING YOUR LIFE	Prentice-Hall, 1959	170
Landis, Judson T.	TEEN-AGER'S GUIDE FOR LIVING	Prentice-Hall, 1957	170
*Landis, Paul H.	YOUR DATING DAYS	McGraw, 1954	173
Landis, Paul H.	YOUR MARRIAGE AND FAMILY LIVING 2 ed.	McGraw, 1954	173

372

*Indicates restricted circulation

TRANSITIONS TO MATURITY (cont.)

Levine, Milton	WONDER OF LIFE, rev. ed.	Golden Press, 1952	
Lowndes, Marion S.	MANUAL FOR BABY SITTERS	Little, 1951	649
*Ludden, Allen	PLAIN TALK FOR MEN UNDER 21!	Dodd, Mead, 1954	170
*Ludden, Allen	PLAIN TALK FOR WOMEN UNDER 21!	Dodd, 1956	170
McBain, W. M.	SCIENCE OF OURSELVES	Harper, 1962	150
McKown, Harry C.	A BOY GROWS UP	McGraw-Hill, 1949	170
Menninger, William C.	HOW YOU GROW UP	Sterling, 1957	170
Menninger, William C.	YOU AND PSYCHIATRY	Scribner, 1948	132
Moore, Bernice M.	YOU AND YOUR FAMILY, rev.	Heath, 1953	173
*Kenyon, Josephine	HEALTHY BABIES: A COMPLETE HANDBOOK FOR MODERN MOTHERS, 5 ed. rev.	Little, 1951	649
Overstreet, Bonaro W.	UNDERSTANDING FEAR	Harper, 1951	131
Overstreet, Harry A.	MATURE MIND	Norton, 1949	131
Overstreet, Harry A.	MIND ALIVE	Norton, 1954	137
Overton, Grace	LIVING WITH PARENTS	Broadman Press, 1954	173
Phillips, Ewing L.	PSYCHOLOGY AND PERSONALITY	Prentice-Hall, 1957	150
Pike, James A.	IF YOU MARRY OUTSIDE YOUR FAITH, rev. ed.	Harper, 1962	173
Quinn, James A.	LIVING IN SOCIAL GROUPS	Lippincott, 1962	301
Reilly, William J.	SUCCESSFUL HUMAN RELATIONS	Harper, 1952	174
Reilly, William J.	TWELVE RULES FOR STRAIGHT THINKING	Harper, 1947	160
Riedman, Sarah R.	OUR HORMONES AND HOW THEY WORK	Abelard, 1956	612

*Indicates restricted circulation

TRANSITIONS TO MATURITY (cont.)

Riehl, Carmella L.	FAMILY NURSING AND CHILD CARE	Bennett, 1961	649
Riesman, David	LONELY CROWD	Yale University Press, 1950	136
Ruch, Floyd L.	PSYCHOLOGY AND LIFE, 5 ed.	Scott, Foresman, 1958	150
Saul, Leon J.	EMOTIONAL MATURITY: THE DEVELOPMENT AND DYNAMICS OF PERSONALITY, 2 ed.	Lippincott, 1960	616
Scheinfeld, Amram	HUMAN HEREDITY HANDBOOK	Lippincott, 1956	575
*Scheinfeld, Amram	NEW YOU AND HEREDITY	Lippincott, 1950	575
Scheinfeld, Amram	WHY YOU ARE YOU	Abelard, 1959	575
Schacter, Helen	HOW PERSONALITIES GROW	Taplinger, 1958	137
Schacter, Helen	INTO YOUR TEENS	Scott, Foresman, 1954	170
Sorenson, Herbert B.	PSYCHOLOGY FOR LIVING, 2 ed.	McGraw, 1957	150
Spock, Benjamin	COMMON SENSE BOOK OF BABY AND CHILD CARE	Duell (Meredith), 1946	649
Underhill, Ruth M.	FIRST CAME THE FAMILY	Morrow, 1958	173
Vetter, Marjorie	QUESTIONS GIRLS ASK	Dutton, 1959	170
Viaud, Gaston	INTELLIGENCE	Harper, 1960	150
Westervelt, Virginia V.	GETTING ALONG IN THE TEEN-AGE WORLD	Putnam, 1957	170
Wright, Milton	MANAGING YOURSELF, 2 ed.	McGraw, 1949	150
Yale University	FIRST FIVE YEARS OF LIFE	Harper, 1960	136.7

374

*Indicates restricted circulation

NARCOTICS, ALCOHOL, TOBACCO, AND OTHER HARMFUL SUBSTANCES

Asimov, Isaac	CHEMICALS OF LIFE	Abelard, 1954	612
Buckwalter, J. A.	MERCHANTS OF MISERY	Narcotics Education, Inc., 1961	
Cooley, Donald G.	SCIENCE BOOK OF WONDER DRUG	Watts, 1954	615
Epstein, Samuel	MIRACLES FROM MICROBES: THE ROAD TO STREPTOMYCIN	Rutgers University, 1946	615
Epstein, Samuel	NOW YOU'RE LIVING	Narcotics Education, Inc., 1961	
Raab, Earl	MAJOR SOCIAL PROBLEMS	Harper, 1959	309
Raab, Earl	REALLY LIVING	Narcotics Education, Inc., 1960	
Reinfeld, Fred	MIRACLE DRUGS AND THE NEW AGE OF MEDICINE	Sterling, 1959	615
Rice, Thurman B.	EFFECTS OF ALCOHOLIC DRINKS, TOBACCO, SEDATIVES, NARCOTICS	Row, Peterson, 1961	613
Silverman, Milton	MAGIC IN A BOTTLE	Macmillan, 1948	615
Sokoloff, Boris	MIRACLE DRUGS, 3 ed.	Prentice-Hall, 1954	615
Sutherland, Louis	MAGIC BULLETS	Little, 1956	616

PROGRESS IN PUBLIC HEALTH

Baron, A. L.	MAN AGAINST GERMS	Dutton, 1957	616
Caidin, Martin	AVIATION AND SPACE MEDICINE	Dutton, 1962	
Calder, Ritchie	WONDERFUL WORLD OF MEDICINE	Doubleday, 1958	610
Carson, Rachel	SILENT SPRING	Houghton, 1962	632
Chambers, Robert W.	FROM CELL TO TEST TUBE	Scribner, 1960	612
Clark, Marguerite	MEDICINE TODAY: A REPORT ON A DECADE OF PROGRESS	Funk, 1959	610
Cook, J. Gordon	VIRUS IN THE CELL	Dial, 1957	616
Crandall, Frank G.	IT'S AN ALLERGY	Murray and Gee, 1946	615
De Kruif, Paul	MICROBE HUNTERS	Harcourt, 1932	920
Deming, Dorothy	PRACTICAL NURSE	Harvard, 1947	649
Dietz, David	ALL ABOUT GREAT MEDICAL DISCOVERIES	Random, 1960	610
Dodge, Bertha S.	STORY OF NURSING	Little, 1954	
Eberle, Irmengarde	MODERN MEDICAL DISCOVERIES	Crowell, 1959	610
Elwell, Felicia R.	SCIENCE AND THE DOCTOR	Criterion, 1959	610
Fermi, Laura	ATOMS FOR THE WORLD	University of Chicago, 1957	539
Gallant, Roy A.	MAN'S REACH INTO SPACE	Doubleday, 1959	612
Glasstone, Samuel	SOURCEBOOK IN ATOMIC ENERGY, 2 ed.	Von Nostrand, 1958	539
Grant, Madeline P.	WONDER WORLD OF MICROBES	McGraw, 1956	589
Hanrahan, James S.	SPACE BIOLOGY	Basic Books, 1960	612
Hemming, James	MANKIND AGAINST THE KILLERS	McKay, 1956	610
Hemphill, Josephine	FRUITCAKE AND ARSENIC	Little	818

PROGRESS IN PUBLIC HEALTH (cont.)

Hill, Ralph N.	DOCTORS WHO CONQUERED YELLOW FEVER	Random, 1957	616
Lang, G. E.	MENTAL HEALTH	Wilson, 1958	808.5
Lewis, Edith P.	NURSE: CAREERS WITHIN A CAREER IN PROFESSIONAL NURSING	Macmillan, 1962	
Martin, Lealon	CONQUEST OF DISEASE	Coward, 1961	610
Neal, Harry	DISEASE DETECTIVES: YOUR CAREER IN MEDICAL RESEARCH	Messner, 1959	374.1
Nourse, Alan E.	SO YOU WANT TO BE A DOCTOR	Harper, 1957	374.1
Nourse, Alan E.	SO YOU WANT TO BE A NURSE	Harper, 1961	374.1
Ridenour, Nina	MENTAL HEALTH IN THE UNITED STATES: A 50 YEAR HISTORY	Harvard, 1961	
Riedman, Sarah R.	SHOTS WITHOUT GUNS: THE STORY OF VACCINATION	Rand-McNally, 1960	610
Ross, Frank	WORLD OF MEDICINE	Lothrop, 1963	
Roueche, Berton	ELEVEN BLUE MEN	Little, 1954	610
Seeman, Bernard	MAN AGAINST PAIN	Chilton, 1962	
Shippen, Katherine B.	MEN OF MEDICINE	Viking, 1957	610
Starrett, Robert S.	FIND A CAREER IN MEDICINE	Putnam, 1960	374.1
Sterling, Dorothy	POLIO PIONEERS	Doubleday, 1955	616
Sterne, Emma G.	BLOOD BROTHERS: FOUR MEN OF SCIENCE	Knoff, 1959	920
Styler, Herman	PLAGUE FIGHTERS	Chilton, 1960	614
Sullivan, Navin	PIONEER GERM FIGHTERS	Althenum, 1962	
Teller, Edward	OUR NUCLEAR FUTURE: FACTS, DANGERS, AND OPPORTUNITIES	Criterion, 1958	539

377

PROGRESS IN PUBLIC HEALTH (cont.)

U. S. Department of Agriculture	INSECTS: YEARBOOK OF AGRICULTURE, 1952	Government Printing Office, 1952	630
U. S. Department of Agriculture	WATER: YEARBOOK OF AGRICULTURE, 1955	Government Printing Office, 1955	630
Van Avery, Peter	PUBLIC HEALTH	Wilson, 1959	808.5
Williams, Greer	VIRUS HUNTERS	Knoff, 1959	616
Wright, Helen	AMAZING WORLD OF MEDICINE	Harper, 1961	610
Zinsser, Hans	RATS, LICE, AND HISTORY	Little, 1935	616

CONSUMER HEALTH PROTECTION

Black, Hillel	BUY NOW, PAY LATER	Morrow, 1961	332
Bradley, Joseph F.	PERSONAL AND FAMILY FINANCE	Rinehart, 1957	332
Packard, Vance	HIDDEN PERSUADERS	McKay, 1957	659
Peters, Clarence A.	FREE MEDICAL CARE	Wilson, 1946	808.5
Phillips, E. Bryant	CONSUMER ECONOMIC PROBLEMS	Holt, 1957	339
Smith, Ralph L.	HEALTH HUCKSTERS	Crowell, 1960	614
Soule, George	ECONOMICS FOR LIVING	Abelard, 1961	330
Wilhelms, Fred T.	CONSUMER LIVING	Gregg, 1951	339
Wilson, W. H.	CONSUMER ECONOMIC PROBLEMS, 6 ed.	South-Western, 1961	330

ESSENTIALS OF FIRST AID

American Red Cross	FIRST AID TEXTBOOK, rev. ed.	Doubleday, 1957	614.8
American Red Cross	HOME NURSING TEXTBOOK	Doubleday, 1951	
American Red Cross	LIFE SAVING AND WATER SAFETY	Doubleday, 1956	614.8
American Red Cross	SWIMMING AND DIVING	Doubleday, 1938	
Floherty, John J.	WATCH YOUR STEP	Lippincott, 1950	614.8
Jenkins, Gladys G.	HEALTH AND SAFETY FOR TEEN-AGERS	Scott, 1962	136.7
Riehl, Carmella L.	FAMILY NURSING	Bennett, 1960	649
Silvia, Charles E.	LIFESAVING AND WATER SAFETY INSTRUCTIONS	Association Press, 1958	614.8
Sports, Illustrated	BOOK OF SAFE DRIVING	Lippincott, 1962	629.2

GENERAL READINGS PERTAINING TO ALL AREAS

Asimov, Isaac	LIVING RIVER	Abelard, 1959	612
Best, Charles H.	HUMAN BODY: IT'S ANATOMY AND PHYSIOLOGY, 6 ed.	Holt, 1963	612
Borek, Ernest	ATOMS WITHIN US	Columbia, 1961	612
Carlson, Anton J.	MACHINERY OF THE BODY, 5 ed.	University of Chicago, 1961	612
Chambers, Robert W.	FROM CELL TO TEST TUBE	Scribners	612
Clemensen, Jessie W.	YOUR HEALTH AND SAFETY, 4 ed.	Harcourt, 1957	612
Clendening, Logan	HUMAN BODY, 5 ed.	Knopf	612
De Coursey, Russell M.	HUMAN ORGANISM, 2 ed.	McGraw, 1961	612
Diehl, Harold	HEALTHFUL LIVING, 6 ed.	McGraw, 1960	613

GENERAL READINGS PERTAINING TO ALL AREAS (cont.)

Calambos, Robert	NERVES AND MUSCLES	Doubleday, 1962	
Hoerr, N. L.	BLACKISTON'S NEW GOULD MEDICAL DICTIONARY	McGraw, 1956	610
Kimber, Diana C.	ANATOMY AND PHYSIOLOGY, 14 ed.	Macmillan, 1957	612
McGraw-Hill	ENCYCLOPEDIA OF SCIENCE AND TECHNOLOGY	McGraw, 1960	503
Meredith, Florence L.	SCIENCE OF HEALTH, 3 ed.	McGraw, 1957	613
Moon, Truman J.	MODERN BIOLOGY	Holt, 1963	570
Otto, James H.	MODERN HEALTH	Holt, 1963	613
Seeman, Bernard	RIVER OF LIFE	Norton, 1961	612
Turner, Clair E.	PERSONAL AND COMMUNITY HEALTH, 12 ed.	Mosby, 1963	613
Wilson, Mitchell	HUMAN BODY	Golden Press, 1959	612
Wilson, Mitchell	BODY IN ACTION	Golden Press, 1962	612

FILMED FROM BEST AVAILABLE COPY